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ABSTRACT

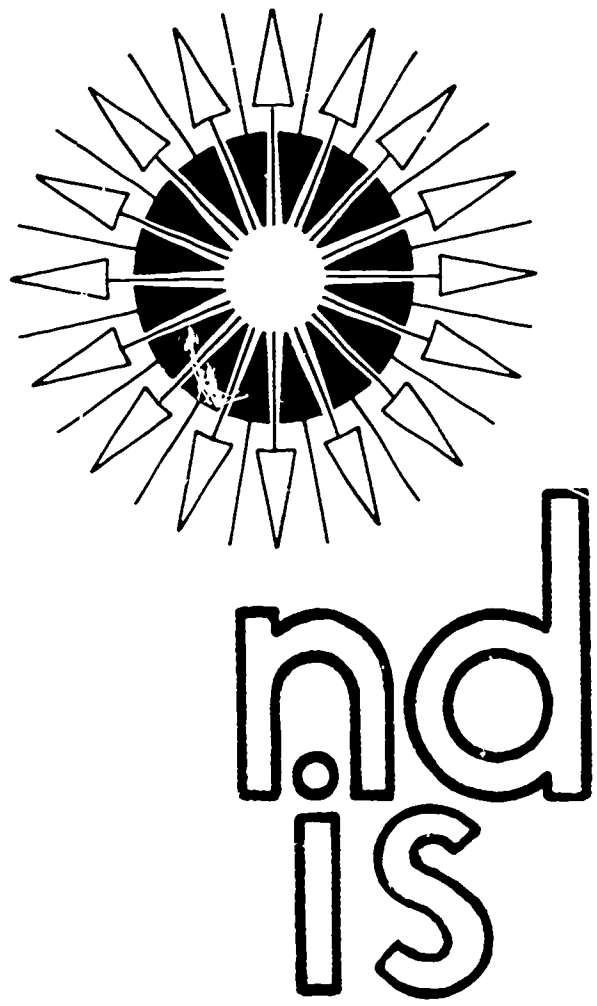
The purpose of this conference was to: (1) improve reference and research library resources and services within its area by identifying, sharing and developing such resources and services and (2) further inter-library cooperation, communication and transportation of materials within the area of the Council. Aware that many information needs exist in the area, the Council hopes to inform the people in the North Country that it is willing and able to assist in meeting these needs. An overview of the Reference and Research Resources (3R's) Program is followed by a presentation of the role of Xerox Corporation or University Microfilms in information services. A representative from International Business Machines discussed the use of computers as library tools. The library system developed at Eastman Kodak Company is also described. Many information systems now in use or being studied are briefly described including: (1) the Albany Regional Medical Program Consulting Group for Library Service, (2) the Interuniversity Communications Council (EDUCOM), (3) National Chemical Information System, (4) National Physics Information System, (5) National Mathematics Information System and (6) National Biological Information Network. Full transcripts of all speeches are given in the proceedings. (NH)

NORTH COUNTRY REFERENCE AND RESEARCH RESOURCES COUNCIL

JUNE 12 - 13

SUMMER CONFERENCE

"NEW DEVELOPMENTS IN INFORMATION SERVICES"



Conference Proceedings
November 1969

Mrs. Lois McAllister, editor

North Country Reference & Research Resources Council
73 Park Street
Canton, New York 13617

JUNE 12 - 13, 1969

CONFERENCE

AT

CLARKSON COLLEGE OF TECHNOLOGY, POTSDAM, NEW YORK

PROGRAM

THURSDAY, June 12, 1969
10:00 - 11:30 a.m. Registration and Coffee
New Residence Complex (NEWS)

12 noon Lunch
Presiding: Andrew K. Peters, President NCRRRC and Librarian, Owen D. Young Library, St. Lawrence University, Canton, New York

Welcome: Dr. John W. Graham, Jr., President, Clarkson College of Technology

Speaker: Ronald B. Stafford, New York State Senator
"Developments in the North Country"

2:00 - 4:30 p.m. First Session - Ross-Brooks Dining Hall
Presiding: Dr. Donald C. Yelton, Director, Frederick Crumb Memorial Library, State University College at Potsdam.

Keynote Speaker: Jean L. Connor, Director, New York State Division of Library Development
"3R Councils in New York State"

Panel Moderator: John A. Humphrey, Assistant Commissioner for Libraries, New York State Education Department
Members of Panel: Mrs. Mary M. Baxter, Sr. Programmer Analyst, and Michael Kerwan, Programmer Analyst, Biomedical Center, Upstate Medical College; Dudley D.B. Samoiloff, Manager of Product Planning, Xerox Corp.; Stephen E. Furth, Manager, Information Systems Marketing, IBM Corp.; Robert B. Smith, Head of the Department of Information Services, Eastman Kodak Research Laboratories.

Discussion Period.

6:00 - 7:00 p.m. Social Hour - New Residence Complex (NEWS)

7:00 p.m. Dinner
Presiding: Mrs. Elena Horton, Executive Director, North Country Reference and Research Resources Council

Speaker: Neal L. Moylan, Commissioner of New York State Department of Commerce
"New Concepts in Technical Services"

8:30 p.m. Tours
Meeting place: Frederick W. Crumb Memorial Library, State University College at Potsdam

A. Art Gallery: Brainerd Hall, Director – Benedict Goldsmith
B. Learning Resources Center: Kalles Hall, Director – Robert Henderhan

FRIDAY, June 13, 1969
8:00 - 8:45 a.m. Breakfast – New Residence Complex (NEWS)

9:00 - 10:00 a.m. Second Session – Ross-Brooks Dining Hall
Presiding: Dr. Roger C. Greer, Dean, School of Library Science, Syracuse University

Speakers: William T. Strauss, M.D., Director Albany Regional Medical Library
Harold C. King, Vice-President, EDUCOM
"National Networks"

Coffee Break

10:30 - 11:30 Discussion Groups

Leaders:

Richard W. Lawrence, Jr.	Dr. Donald C. Yelton
Dr. Herman L. Shulman	E.J. Josey
Dr. Joseph Whitten	Dr. Roger C. Greer
Basil Mitchell	

11:30 - 12:00 Group Summaries

12:30 Lunch - New Residence Complex (NEWS)
Presiding: Dr. M. Frances Breen, Librarian, Benjamin Feinberg Library, State University College, Plattsburgh, New York

Speaker: Jean L. Connor
"Conference Summary"

COMMITTEE MEMBERS

Co-chairmen: Mary Parker and Ottilie Rollins

Jason Carnright - Transportation	Elena Horton - Publicity
Peggy Overfield - Registration & Hospitality	Lois McAllister
Mary Lou Mallam - General Advisor	Frank A. Culver - Publicity

THE NORTH COUNTRY REFERENCE AND RESEARCH RESOURCES COUNCIL

was formed for the purpose of:

"1) Improving reference and research library resources and services withing its area by identifying, sharing, and developing such resources and services.

2) Furthering inter-library cooperation, communication, and transportation of materials within the area of the Council."

It is one of nine such Councils in New York State and encompasses the seven northern counties; Clinton, Essex, Franklin, St. Lawrence, Lewis, Jefferson, and Oswego. Its membership consists of approximately thirty institutions; collegiate, business, industrial and technical. It is funded by a legislative appropriation and operates under the auspices of the New York State Library, Division of Library Development, Bureau of Academic and Research Libraries.

The Council functions under the directorship of Mrs. Elena Horton and has nine trustees:
Mr. Andrew K. Peters, President
Dr. Donald C. Yelton, Vice-President
Dr. M. Frances Breen, Treasurer
Mrs. Mary G. Parker, Secretary
Mrs. Ottilie Rollins
Mr. Anthony Vecchio
Reverend Richard Sturtz
Mr. Richard W. Lawrence, Jr.
Mr. H.J. Swinney

The North Country Reference and Research Resources Council is currently continuing to:

1) Improved inter-library loan service. A delivery system servicing the seven northern counties – Clinton, Essex, Franklin, St. Lawrence, Lewis, Jefferson and Oswego has been established.
2) Visit industries in the area to ascertain their needs and to offer whatever library materials and assistance are available.
3) Have radio and TV spots – in the hope of acquainting the public with the service available.
4) Distribute brochures explaining the Council, its office location, telephone number and services which are offered.
5) Publish a newsletter which is distributed to members and other interested parties.

Two years ago the Council sponsored a two-day conference on "International Inter-Library Cooperation". Seventy-five interested librarians from both Canada and the United States attended.

The Council is aware that many information needs exist in the area. Our hope is to inform the people in the North Country that the Council is willing and able to assist in meeting these needs. It is with this goal in mind that the conference on "New Developments in Information Services" was held and these Proceedings are distributed.

On behalf of the Council, I wish to express our deep appreciation to Dr. John W. Graham, Senator Ronald B. Stafford, Miss Jean L. Connor, Mr. John A. Humphry, Mrs. Mary M. Baxter, Mr. Michael Kerwan, Mr. Dudley D. B. Samoiloff, Mr. Stephen E. Furth, Mr. Harold King, Mr. Roland A. Loveless, Mr. E. J. Josey, Mr. Richard W. Lawrence, Jr., Mr. Basil Mitchell, Dr. Herman L. Shulman, Mr. E. Vanderveer Judd, Dr. Donald C. Yelton and Dr. M. Frances Breen for their contributions to the program; Mrs. Ottilie Rollins, Co-Chairman, Mr. Jason Carnright, Mrs. Peggy Overfield, Mrs. Mary Lou Mallam, Mr. Frank Culver and Mrs. Elena Horton, Director of the Council, and their committees for their untiring efforts to make the conference a success; Mrs. Lois McAllister and her committee for compiling and editing these proceedings; and those who attended for their participation.

Mrs. Mary G. Parker,
Co-Chairman
Library Director
Canton Agricultural & Technical College

Mrs. Mary G. Parker

Dr. John W. Graham, Jr.

Ronald B. Stafford

LUNCHEON PROGRAM, JUNE 12

Presiding: Mrs. Mary G. Parker, Librarian, Canton ATC

Mrs. Parker: We are privileged to hold the second Summer Conference of the North Country Reference and Research Resources Council on this beautiful Clarkson College Campus. We are doubly privileged to have as our host Dr. John Graham, President of Clarkson and an enthusiastic supporter of our Council and what we are hoping to accomplish by this conference. He is with us this noon and has some words of greeting for us. Dr. Graham.

Dr. John W. Graham, Jr.

I'm pleased to welcome you people to Clarkson College for the second year. In your blue folders there is a leaflet about our college. I assume that you will be reading that and thus I will say no more here about Clarkson other than we are extremely glad to have you with us. I would like to commend this North Country Reference and Research Resources Council for the initiative that you are taking in this matter of cooperation in an effort to help improve northern New York. I commend you as I commend the libraries of our four institutions close at hand – Canton ATC, St. Lawrence, Clarkson and State University College at Potsdam. They have been working together very effectively and closely the last several years and have set the pace for closer inter-institutional cooperation. There are still many things that we can and should be doing, which we must and shall do.

I mentioned cooperation. Mr. Stafford, we're very happy to be cooperating with the state in the sense that the decision has been made to begin to support the private schools out of the state coffers in accordance with the Bundy formula – $400 for each Bachelor's and Master's graduate and $2400 for each Ph.D. It's a significant step and it bodes well for the future of private education in this state as it does for all of higher education. Mr. Levi, President of the University of Chicago, gave the Commencement address at the University of Rochester this week-end. In an informal meeting, ahead of the Commencement exercises, he stated that he was pessimistic about the future of private education. He felt as an individual that within as short a time span as ten years we could expect the private colleges to be much less strong than they are now if indeed they continue to exist as private institutions. Well, I say that

if this turned out to be the case it would be a terrible loss for all of us, not just for the private schools. There's no reason why we should ask for support just to stay alive; but competition is very American. The private school has a role of testing, of leading, of experimentation which makes it a necessary partner in the whole scheme of higher education, and I am hopeful that we may expect more cooperation with the State in the future to assure the continued vitality of the private educational system.

Now you people in this Council and we at Clarkson and the other colleges are in a common endeavor which seeks to upgrade and to promote the economic growth of northern New York. We must attract to this area more industries. We must upgrade through education the young people who are born and raised in this area. In this partnership of the libraries, the educational institutions and the new industries, we can expect to see the income level of northern New York increase. I would guess the income level of northern New York currently is half of what it may be in some of the urban areas. I have a personal foible in all this. I feel that we need better transportation if we're going to solve this problem, but I am reminded by some of my friends in the legislature that we are talking about 225 million dollars when we talk about a new road across the state. You are doing wonderful things educationally right now and we're proud to have you here and to support the cooperative activities in which you are engaged. When I was in Rochester I also noted in the *Rochester Times Union* a quote from Marshall McLuhan. He admitted that books are here to stay; so rest assured that there will be continued need for your services. It's awfully good to see you.

Mrs. Parker: There are two other people I would like to introduce to you. Mr. Paul Jtineant, where are you? He has done much for us. He is the senior design illustrator for the Learning Resources Center at SUNY Potsdam.* He designed our syn· ·he produced our directory. Also, Mrs. Ottilie Rollins. Mrs. Rollins is the Librarian at Clarkson College. She has done most of the work in putting this conference together and if it goes off well she deserves the credit.

I have a telegram I would like to read. This is to Mrs. Elena Horton, Executive Director, NCRRRC. "I would like to extend my warmest greetings and very best wishes to all attending and participating in the summer conference of the NCRRRC. I know that the conference will be a most successful one under the very fine leadership of Mrs. Horton. Sincerely regret that I am unable to be present for this occasion but you are indeed fortunate to have so many fine guest speakers, including my good friend Senator Ronald Stafford and New York State Commerce Commissioner Neil Moylan in addition to other distinguished representatives of government and industry participating in the conference." Signed, U.S. Representative, Robert C. McEwen.

A few days before the general election some years ago in Arizona, a Methodist minister in Pheonix called the newspaper and said that he wished to thank them for the error that they had made in announcing his sermon in their paper and this young reporter was so flustered he said, "What did we do that was so wrong?" "Well," the minister replied, "my topic was 'What Jesus saw in a Publican' and you printed it 'What Jesus saw in a Republican'. I had the largest congregation I have ever had." We have a very fine Republican with us today who I'm sure will have something to tell us.

Senator Stafford was born in Plattsburgh, attended Plattsburgh High School, received his Bachelor's degree from St. Lawrence and then joined the military intelligence program and was stationed in Washington. Upon retirement from the Army he went to Columbia Law School and received his law degree from there. He was admitted to the bar in 1963. In 1965 he was elected to the Senate representing the 48th Senatorial district which then included Clinton, Essex, Franklin, Hamilton and St. Lawrence Counties. In 1966 they revised this and he was re-elected to the 42nd Senatorial District which now includes Clinton, Essex, Franklin, Hamilton, Herkimer, Warren and Washington. He is very active in the Senate. He's a member of the Joint Legislative Committee on Education, Reapportionment, and Town Law. He's presently chairman of the Senate Standing Committee on Higher Education and is also a member of the following Senate standing committees: Agriculture and Marketing, Codes, Conservation and Recreation, General Laws, National Defense and Military Affairs, Villages, Corporations, and Excise. He's a member of a number of civic and service organizations: the Alumni Council of St. Lawrence University, The Board of Trustees of the Champlain Valley School of Nursing, the Board of Governors of the Medical Center Hospital of Vermont, Board of Directors of Crown Point Foundation, member of the Clinton County Bar Association, New York State Bar

*Since August, Director of Publications, Clarkson College of Technology.

Association and the American Bar Association. he also maintains a law office in Plattsburgh. I really don't know what he does with his spare time. We're very happy and very privileged to have Senator Stafford with us today.

Senator Ronald B. Stafford

I certainly do commend everyone for taking part in this worthwhile conference and meeting. The North Country Reference and Research Resources Council indeed makes an immeasurable contribution to our area of the Empire State.

I realize that very often the demands of a menu for a luncheon speaker consist of a proper mixture of forthrightness and uplifting inspiration, salted with a slight touch of provocation, finally spiced with an interesting anecdote or two.

I assure you I shall disappoint you.

There is no question but that upstate New York in many areas, including this very part of northern New York, must be considered a culturally deprived area and, in turn, an economically depressed region. However, having grown up in upstate New York, attended an upstate New York college, and presently serving as a representative in the New York state legislature from upstate New York, I ask you to allow me to trespass upon your time with some thoughts concerning our area in addition to some reflections upon how your council is contributing toward the solution of these problems.

A number of years ago we did have industry in upstate New York. For instance, in some counties, there were glass factories, textile factories and industry in general. As a matter of fact, right here in St. Lawrence County, we had some industrial complexes of earlier days which are now ghost towns. There are at least three of these ghost towns within ten miles of where I am standing here today. The Industrial Revolution, as it advanced, resulted in industry moving to other localities in our nation. Transportation was one problem, and of course, industry moved to where there were larger concentrations of people for obvious reasons.

The farming industry has always been one of the main ways of earning a livelihood in the north country. However, as we all know the agricultural industry has changed a great deal. The small farms of upstate New York where the operator actually expended capital to remain in operation are rapidly going out of existence. The day is gone when a farmer sells a couple of cows to pay the taxes, and actually makes no profit. As in many other industries, a farmer has to be on a larger scale and it is mandatory that a farm be managed on a business basis. Many of these people who are generally unprepared for an urban society, and who have moved from the farm, have had difficulty when seeking employment.

What was once a rather flourishing economy has, as I suggested earlier, become a relatively depressed area.

For these reasons we have had difficulties in upstate New York. Now, we hope that we are making progress. We hope that people are provided with opportunities for education and self improvement. Your facility of course is of the utmost importance, in providing these opportunities.

Also, I suggest, for instance, that as we seek to have industry move into our area, your facility will provide information concerning what is available and will be available for various industries relative to the labor markets and sources of raw materials. You have done a great deal, and your potential is unlimited.

As I stand before you today, I earnestly believe that the Reference and Research Resources Council is one of the real hopes for our rural areas, such as we have in upstate New York. You must make sure that your legislators are aware of the need for the services provided by the North Country Reference and Research Resources Council, the fine work which has already been done, and the real hope which your work promises. Support for your council will not just appear. You must remain active making sure that appropriate authorities and agencies are made aware and appreciate the immeasurable values of your council. I urge and encourage you to become more involved in this particular facet of our representative democracy. I indeed look forward to our continuing to work together, and you may all rest assured that you have my continued interest, support and cooperation.

I would like to answer any questions and open the session for discussion at this time concerning these matters and any others of mutual concern.

Thank you.

Mrs. Elena Horton, Executive Director, North Country Reference and Research Resources Council: One of our concerns is getting professional people into the area, and I'm thinking specifically in terms of professional librarians, and the image isn't there. Have you any suggestions for changing the image? I think in some places development departments publicize the advantages of the area and I realize there is a certain amount of it up here but you still get the reaction: "What's up there?" It concerns me because it is a beautiful area of the state.

Senator Stafford: Well I thing this is a very good point and of course I could spend hours on it. I would say this, that I think we are going to have to wait for the population increase. It's just amazing what they plan, say in the next 50 years, in the triangle between Albany, Montreal and Utica, for instance. Some of you have probably done some reading on this or obviously have the facilities at your fingertips. I do think that more groundwork could have been done in promoting the area but as far as real results, we'll have to wait for the time when the population explosion is going to make our area more valuable. I do feel that as far as the State is concerned more work can be done, as always. I was very interested to hear on the radio on the way in, that the President will be here next Saturday. So maybe we are going to get some free publicity. It's a very good point and it's something I think we should keep reminding ourselves that as far as upstate New York goes we do have an image, so to speak, to overcome.

Harold T. Lowe: What about jet airports for the North Country?

Senator Stafford: This actually is one of the possibilities. I think within the next 50 years one of the major jet trans-Atlantic airports should be right in this area. I think this is something we should be working on and making sure if we have the area and have the facilities. I'm just speaking as a layman now, but when you hear the problems that they're having in the New York City area and now I think Montreal is becoming crowded, then we have a multi-million dollar facility in an air base – sometimes you wonder why can't some of those trans-Atlantic flights come and land where we already have a jet facility. If we are putting people on the moon, I think we should be able to put both types of aircraft on the same airfield and if we have to keep them separated, I think we could. I think this possibly would bring people to the area, if a major concern realized that they could have a business here in the States and then get to Europe in literally hours. As you can see, I agree.

Donald Lantry: Why don't we get the benefits of cheap public power up here so near the huge St. Lawrence power project?

Senator Stafford: I was afraid you were going to ask me that. I think that the issue has been put before me very clearly by both sides, and at the present time I haven't decided what the answer is, and I'm very frank about it. If you talk to the people in the public power field, they present a tremendous case that the entire upstate community is receiving power at the lowest possible cost and receiving all the cooperation in the world. Then if you talk to other people who have also reviewed the field, you'll get a much different answer. I would say that this is an answer that the public power sector is going to have to give and give it clearly, concisely and fully in the very near future, if not tomorrow, if you get my point. They work for us and they should give an answer which we will agree with or at least understand. I don't think we have that answer right now.

Mr. Ronald Roberts, Director, North Country Library System: Recently in Jefferson County the Chamber of Commerce surveyed industry to find out what conditions they considered necessary for industrial development in the future, and the general conclusion was that the situation in the county was cloudy. One of the findings of the report was that industry considered the cultural advantages of the region poor. We all know that when industry decides where to locate, this is one of the points that is very important. Now I represent public libraries of the region and I know that historically they have been poorly supported, and yet, in many of our small communities, this is the only cultural institution available. We find in the last legislature that we were cut 5% along with other state institutions even though the public library systems have not had an increase in their incomes in over two years. I was wondering what you foresee as the State's role in supporting public libraries in the future?

Senator Stafford: I foresee a bright future as far as the public libraries are concerned, but I think it's going to be incumbent upon the people involved in the public libraries to make sure that the legislature doesn't cut your budget. Believe me, as Winston Churchill once said, "this is a terrible system". However, it's the best system modern man has come up with. In a representative democracy you're going to have a question of priorities. I for one don't feel that the priorities were well set this year. I think we have to continue to make sure that they're set better but the only way you're going to get more support is for the people themselves to go to their representatives and say, "Look, you don't cut our central school," or "You don't cut our libraries", and until that comes probably public libraries will be on the same strata on the totem pole that they are at the present time. I hope to see them improve but it's going to be up to all of us to see that they do improve and we're going to have to talk to the people, as I say, the general public. Even if you want to call it lobbying, I don't see anything wrong with it at all. I think it's necessary and this is what public libraries are going to have to do.

Mr. Nicholas Smith, Librarian, Ogdensburg Public Library: I would like to add to the statement Mr. Roberts made. Many of the people in the north country are not tax payers, they are tenant farmers. Therefore, support for public libraries must come from the State and Federal governments to bring them up to the level of the city libraries. One other think, opportunity for employment on the farms, as they exist, in the north country today is scarce – also – the youth who attend college leave this area.

Mr. Stafford interrupts: Some do, I didn't. Go ahead.

Mr. Smith: We have to give these people as broad a background as we can, so that when they do go to college and enter the labor market with those from an urban area they will be able to compete successfully.

Senator Stafford: I think you stated a very good case. Now let me say this, I understand completely. In what you've just said here today, I agree completely and I think I tried to say earlier that we have to be very realistic. If I just stood here today and told you that libraries were going to get this type of support or that type of support, I would just be talking through my hat, because the situation at the present time in the legislature is that they're going to answer to the priorities where the pressures are. There's no question about it. It's unbelievable what can be done when you decide where the, shall we say sensitive points are (pressure points) so to speak, on the legislature. I know some people here already know. I think this is what's going to have to be done and I hate to be so practical with you, but I think I have to be to have this meaningful. I realize this isn't a fair example but I think it makes my point. If you go into any area and talk to people and explain to them, for example, what our central schools have done, I don't think too many of them will argue. You know the point that I'm making. I think we're going to have to educate the people in this area and those of us who are leaders, and I think the people in this room are, are going to have to go to work and make sure we get these just desserts. I'm willing to do it, and I know all of you are. One more question.

Mr. Basil Mitchell, Executive Director, Southeastern 3R Council: I'm from the Hudson Valley. I represent the same sort of 3R organization there that Elena Horton represents here, and Mrs. Horton and I and most of the people here today are concerned with what is essentially an artificial resource of the State. Now the advantages of the natural resources that have been the subject of discussion right here this afternoon are very obvious. Mr. Lawrence here was a pioneer in the State in trying to do something about realization of the advantages of a very important artificial resource. Now how can we put this message across?

Senator Stafford: I think it's a very good point and again to be extremely practical with you, Mr. Lawrence has put his point across with me. It is fine to have an advocate here, but there are 56 others in the State and if we add Dick Lawrence's to other areas of the State then I assure you that your case would receive even more consideration than it's receiving. Of course, I can't quite agree that it's not receiving any consideration because I think it is, but do you understand the point I'm making? 56 other people are just as vulnerable as I am, if you handle it correctly. It's very, very nice to be with you all and I can only say that this has been extremely enlightening for me. I'm going to go away from today's luncheon much better informed and I think frankly much more of an advocate. Thank you for being a tremendous audience and I look forward to meeting with many of you individually afterwards. Thank you.

Mrs. Parker: Thank you, Senator Stafford. It has been so nice having you with us and you have

given us the background upon which the remainder of the conference can be staged. For those of you who are not acquainted with Dick Lawrence, may I introduce him – Dick, please stand. Thank you, Dr. Graham, for taking time from your busy schedule for us.

We move from here over to Ross-Brooks Dining Hall for the afternoon session.

Stephen E. Furth

Dudley D.B. Samoiloff

Mrs. Mary Baxter

Miss Jean L. Connor

Michael Kerwan

Dr. Donald C. Yelton

FIRST SESSION, THURSDAY, JUNE 12, 1969

Presiding: Dr. Donald C. Yelton, Director
Frederick W. Crumb Memorial Library, State University College at Potsdam

Dr. Yelton: We are running about 40 minutes late, so I'm going to ask you if those at the water hole back there will bring their drinks forward. I think we must start now so we won't run too much into our "happy hour" later on. My task is the relatively simple and highly agreeable one of introducing our keynote speaker and subsequently the panel moderator and then allowing him and his panel to do the work of the session. The topic for discussion as you know is 3R Councils in New York State. The privilege and pleasure of introducing our speakers is marred only by the fact that to introduce Jean Connor and John Humphry to, I would say, 90% of this group is an act of what lawyers would call supererogation. Jean Connor and John Humphry are among the most important people with whom we, in the 3R Councils, deal and

most of us know them. Then we have in our folder, I remind you, biographical information on the speakers so that to some extent I am unemployed.

Nevertheless since this is not a reading civilization anymore, let me very briefly introduce Jean Connor. She is, as you know, the Director of the New York State Division of Library Development. She is a graduate of Middlebury College in Vermont where she took her A.B. in English literature and is a member of Phi Beta Kappa. She entered library service in one of the great training schools and one of the great library systems of this state, perhaps of any state, the Rochester Public Library, and was there a number of years in Readers' Services as a Reference Assistant; subsequently, as a Young Adult Librarian and also as a branch librarian. She had two years' experience in the White Plains Public Library System as a Readers' Services Advisor. In 1953 she joined the Bureau of Library Extension and was elevated to the dignity of the directorship of the Division of Library Development in 1964. She is a distinguished figure in public administration in Albany. It is a great privilege to introduce Miss Jean Connor.

AN OVERVIEW OF THE 3R'S PROGRAM

Miss Jean L. Connor

I was asked to talk about the 3R's program broadly, not simply about the work of the regional councils, but the State level program as well; with the assumption that there were some of you here who were new to the program. That requires a little indulgence then from those of you who have helped foster and create the program, because there won't be any surprises in the package for you. What we are attempting in this conference is to bring users of libraries and librarians together. The 3R's program is, of course, in part a service to libraries. It makes our local library stronger; it provides acess to library resources through a statewide network. The 3R's is for college faculty and college students, but it is something much more than a college centered program. It is equally aimed at business, industry, commerce and independent researcher; it is designed for the total group of professional workers no matter where they are.

In short, the program is designed to assist serious library users in gaining access to materials which they need for advanced level work. In defining the Reference and Research program we are characterizing readers as adult and serious readers and we are characterizing the materials they need as advanced or beyond what we expect to find in medium sized public libraries. There is a need to make the Reference and Research Program and its objectives better known and to make the services known, so that those for whom it was created may easily have knowledge of it -- hence a conference like this.

The Commissioner of Education in 1960 appointed a committee, of which Dick Lawrence was the chairman, to study how advanced research needs could be met. The report of the Commissioner's Committee on Reference and Research Library Resources was published in 1961. Through 1965 we attempted to pass legislation to initiate the program, but we didn't get it through. In 1965 the first Governor's Conference on Libraries was held and the needs of library service, particularly at the advanced level, gained the interest of the Governor. In 1966, the first State funding for the 3R's Program was passed, $700,000. The program had been designed and envisaged at the $8 to $9 million dollar level, so this was a very small beginning and enabled all of us largely to move forward with the organization of regional systems and with the beginning of the State level program but not with the entire program. State funding has continued since 1966 as a part of the State Purposes budget and part of the State Education Department budget. There is no legislative aid formula backing the program. We have to fight our way budgetarily year by year.

Currently there is a Commissioner's Committee, another one, called the Commissioner's Committee on Library Development with Harold Hacker chairman, which is considering all types of library service. I am quite sure there will be added recommendations coming forward there in support of the objectives of the reference and research program.

I have talked briefly about who the program is for and how it came into being. Next I will talk a little about what's happening in the State under the 3R's program. Sometimes I think that the various programs we have underway are confusing, and my aim is to give you some idea what the various programs are and then urge you to go back, use your local outlets, your regional system, and tap into the State level resources if you need them.

Without doubt the most important single project at the State level that we've got going now is

NYSILL, the New York State Interlibrary Loan Program. The purpose of this program is an expanded interlibrary loan service to the serious library user who needs materials not found in his local library, university library or library system. NYSILL enables him, after tapping the State Library, to move on upward through a chain of resources. NYSILL was initiated in March of 1967. It uses contracts between the State Library and 12 major resource libraries in the State including three large public libraries, Rochester, Buffalo and Brooklyn, and nine subject resource libraries, including the American Museum of Natural History, Columbia, Cornell, Engineering Societies, the New York Academy of Medicine, the Research Libraries of The New York Public Library (which I probably should have mentioned first), New York University, and Union Theological.

We have just completed a Nelson Associates evaluation of the NYSILL program and a summary of their report has been published in the BOOKMARK. The full report has been distributed to many of you. I'll keep my comments fairly brief here. I think these major findings at the end of the second phase of the program are of interest. There were 87,000 requests in 1968 through the NYSILL network. The volume is increasing approximately 20% a year. It probably will double by 1975, if the present growth rate continues. We checked our growth rate since the Nelson report was compiled and this 18-20% figure is holding the first quarter of 1969. It is clear to us that this projection, therefore, of the growth rate is in fact occurring. Another finding is that our success rate, is improving. 64% of all NYSILL requests are filled and fill rates for eligible requests are even higher. (In other words, the 64% included some things that we would not expect to fill through the network.) 75% of faculty requests are being filled and 80% of student requests. Another finding is that the State Library is serving effectively as the key and central resource. The proportion of requests filled by the State Library, all requests coming to the State Library, have risen to 47%. I selected a few here with staff help, examples of requests that have come in from the North Country. U.S. Forest Service Resource bulletin, "a Look at Black Walnut Resources and Industries", Clegg, "Probation and Parole", Systematics Association, "The Species Concept in Paleontology", Charles Gross, "The Sources and Literature of English History from the Earliest Times", and a book on marine fishes. All of these requests came from the North Country into the total network and went on upward to the resource libraries I have mentioned.

Naturally we are all pleased with this growing sucess. NYSILL is no longer regarded as experimental, but as an important continuing service. However, in the coming year, on the basis of the study and your field comments to us, we want to give consideration to such recommendations as the need for a professional analysis of the unfilled requests as an additional planning tool; so we can make NYSILL better; the need for a revision of the NYSILL manual, and the need for field help to NYSILL librarians. Our objective here is to increase our collective ability through this network to meet patron needs.

A second major State program under the 3R's is the Union List of Serials project. This is designed as a bibliographic instrument for the identification and location of extant serials in major libraries in the State. It will assist our NYSILL network in a equitable distribution of interlibrary loan referrals. The tool was planned during 1968 with the help of an advisory committee. The scope of the list will be much the same as the third edition of the *Union List of Serials*, but its content will be broader. The master checklist comprises the *SUNY Union List of Serials* and *The Central New York Union List of Serials*. We will be drawing into this the holdings of the specialized collections of the NYSILL network, in a three phased approach. The contract has been let to Irwin Pizer at the State University of New York Upstate Medical Center. Participating libraries in Phase I are the American Museum of Natural History, the Engineering Societies, the Research Libraries of the New York Public Library, the State Library, Teachers College and Union Theological. So far the checking procedures are on schedule. In fact, I believe New York Public and Teachers College have both finished their data collection, and the rest of the libraries are about 75% completed. We expect to publish in December 1969 and we look forward to the phasing in of additional libraries over the next three year period. We feel that this tool shows the importance of an inter-relatedness in the program between the development of bibliographic tools and the interlibrary loan.

Now, the third aspect of the program is in the field of automation. From the very start the Commissioner's Committee on the 3R's saw to it that we didn't forget the new technology. Much of the discussion at the Governor's Conference in 1965 was concerned with the application of automation to

library service. We have also been interested in the whole field of communications. As you know there is a teletype network linking the State Library to all areas of the State, to public library systems and to many university and special libraries. In selecting automation projects at the State Library an effort has been made to develop those projects which would have significance for the State as a whole, as well as facilitating the internal operations of the library.

Primary emphasis has been initially placed on the State Library's Serials project. This is the development of a serials system involving the centralization of serials records, conversion to machine readable form, streamlined check-in procedures, binding control and automatic claims. Systems reprogramming is now being directed toward the expected October arrival of the Department's new computer. About 5,000 titles have been converted. About half of the current holdings of the serials of the State Library and all the Medical holdings of the State Library have been converted. We anticipate that by next January all 10,000 of the non-government serial titles will have been completed and then attention will be focused on documents. It is our hope that this serials control system will be of use to other libraries in the State and that the project as a whole will facilitate greater use of the State Library's resources.

Another use of E.D.P. is in the current-in-progress partial mechanization of NYSILL. It is planned that teletype requests are to be received and stored by the Department's computer, periodically sorted and listed for searching, then automatically transmitted to the referral libraries. There will be provision for reporting back on requests through automation, to the initiating library. At the present time a computer is being used to speed up the internal record keeping function of the State Library Interlibrary Loan Unit.

In addition to the serials and NYSILL automation projects, the State Library expects to initiate in the coming months a study of shelf list conversion problems and techniques.

Of importance to all of us in the statewide picture is the need for information and an exchange of information on existing and projected library/computer-based projects. The Division is currently conducting such a survey to determine the extent of computer utilization. Your Council has been queried. It is too early to analyze results but it is evident that many types and sizes of libraries are applying computer technology and that the clearinghouse role of the Division could be useful to you in an exchange of information. We have under consideration a meeting projected for this winter when the results of this survey could be exchanged and when those of you concerned with such projects could be brought together for a little brain-storming. We will hope to announce the date of that meeting very shortly.

A fourth aspect of the State level program is the development of the Academic and Research Library Bureau to provide consultant service to college, university, special libraries and 3R's councils. E.J. Josey is the Bureau Chief. The Academic and Research Library Bureau staff work with the various councils to tie in State and regional planning. They are working with the councils to insure intersystem cooperation and coordination of effort with public library systems. They are trying to keep abreast of some of the national and non-library information networks that are pertinent to our 3R's program. They are trying to keep abreast of various grants in aid programs, both state and federal. They provide liaison to other aspects of higher education planning to the SUNY network, and to the Departmental officer concerned with planning and higher education. It is a wonderful thing that we have begun to assemble a staff to assist in this consultant role.

Some money has been spent, and this is the fifth area, on studies and evaluation, – research, and I think should be. We have had monitoring of the results of the facsimile experiment, two studies on NYSILL, studies of the relationships of the State Technical Services program, and a number of studies in the field of automation.

Looking ahead, I hope we will before long secure funds for research collection development. Funds are needed to do more than simply compensate the major research libraries for the nuisance value of using their collections. State funds are needed to enrich and maintain the level of great collections such as The Research Libraries of New York Public which, as you know, are operating at a deficit. It is time that we face up to the fact that we cannot expect some of these private collections to remain strong, (and to be there when we want to tap them) unless we invest some money in their resources.

Now in addition to the Statewide and state level program, there are, as you know, nine regional councils such as yours which cover the entire State. The regional 3R's systems have creative ideas of their

own. The every existence of regional groups like yours, closer to the people than State level planning is, closer to the needs of your own business and industry, produces some very interesting thinking. We have analyzed some of the repetitive themes that appear in the projected plans of the nine systems. I see a clear relationship to State level planning and the need to mesh regional planning with State. For instance, in the field of interlibrary loan, all nine of the councils want either new or improved delivery services, six of the councils want expanded teletype programs; six of the councils are thinking of bibliographic centers of referral. A number of them are pressing for further regionalization. Some of them, five, are developing plans for direct access, improved access, something beyond interlibrary loan. There is a need here for the councils to relate regional bibliographic tools to State level planning; the State Union List of Serials may be supplemented by seven regional union lists of serials. The development of a common format and perhaps common computer based records will be extremely helpful. Many of the systems are planning union catalogs. Some of them, like the North Country have developed special bibliographic tools, as for example, your North Country historical materials list which was excellent.

Eight of the nine councils mentioned some aspect of workshops, institutes or continuing education. Your own Roger Greer spoke to us down at Hofstra and urged an increased relationship between the research councils and our library schools. We concur that this would be very fruitful. At the State level we are hoping to secure funds to buttress the research collections which we tap in NYSILL and at the regional level, eight of the nine systems are planning some sort of cooperative acquisition program. It seems to me that in the further refinement of regional plans there is a great need for additional selectivity considering the limited funding that we have now or can expect in the near future. There is a need, as Ralph Blasingame told us at Hofstra, to further clarify our objectives and to set priorities. There is a need to develop and focus on plans that meet needs not only of the academic community but the research community at large and that is why I am glad that the theme of this conference was not limited to service to institutions of higher education. As Dick Logsdon said at Hofstra, there is a need to focus on upper levels of service, research as such, and as I am sure our panel will bring out there is a need to articulate with other states and national programs in the information field.

My last remarks are directed to where the 3R's program is going, something about its future and some of its problems and prospects. We have not arrived at the full 3R's program, but we are on our way. In the interlibrary loan program I hope we can fill an even higher percentage of NYSILL requests. 64% is good but it isn't enough. I think we've got to increase the speed of the interlibrary loan program. As a part of this I do hope to press for a statewide delivery service tied into your regional delivery services. I think we need additional interface with other organized interlibrary systems and we have begun fruitfully here, with a closer tie with SUNY biomedical network. We need to relate and evaluate the NYSILL program to specific groups of non-academic users, to analyze our results in terms of our actual and effective service for example, to business and industry. The A.D. Little study, I think, points up to us that we need to perform more in the active mode, as they characterize it, and not just the reactive. In other words, if a person knocks on our door and asks for a specific author and title, we're doing quite well. If he comes with a subject, we're not doing quite so well. If he sits in his office and we sit in our office, we're not linked at all, and we need somehow more of an active program that would bring us into current awareness services. Beyond interlibrary loan we need additional opportunities for widened direct access to research libraries.

In the field of additional bibliographic tools, there have been expressed needs for union lists of newspapers and for some improved bibliographic access and knowledge of what the State Library holds, whether that be through a computer-based system or not. We are tremendously interested in automation. The State Library itself would, as I say, envisage the day when they might have a machine-based catalog. There is also a need for a fund for automation projects to be financed in part by the State as innovative efforts to move us all forward. So far we have no such special purpose grants and yet we are always being asked whether there isn't such money at the State level to give out for library automation projects. In the future, we hope for a resource collection development fund for the major research libraries, but eventually perhaps there can be some money for regional resource collection development, keeping in mind the needs of commuter students and those areas of the State which are sub-standard.

Research and evaluation will always be indicated, a part of the 3R's program. Ralph Blasingame has said that he hoped that we would attempt some more nonsuccess-oriented demonstrations, be willing to fail

in order that we might learn. We do need user studies and we need cost effectiveness studies. In conclusion we come back to our ultimate objective which is service to serious readers in the field of information and even more broadly, advanced library service for individual and community self-development. That's the 3R's.

Dr. Yelton: Thank you very much, Jean, for this introduction. Are you willing to answer questions? Time is pressing but I think perhaps two or three questions may be forthcoming.

Mr. Charles Penrose, Clarkson: We are very enthusiastic over the NYSILL system. However, one suggestion would be for that 36% of requests that you can't fill, could you tell us where we might try next. Some sources are quite obvious but others are not. I think that would be a wonderful help.

Miss Connor: Well, I think that is something with which we are in hearty agreement, that we must reduce the amount of unfilled requests or see where the proper referral would go next. We have so far, as you well know, not tapped out-of-state resources. All I can say is that we're using the building block approach. We're trying to get effectively going what we started before we add the next building block, but I like the direction in which you're pushing us.

Mrs. Margaret Garner, State University College at Potsdam: You said that there will be some regionalization of interlibrary loan?

Miss Connor: I said some of the centers were pressing for further regionalization and I intended to say it in the context of interlibrary loan. That is, the regional program setup in the Buffalo area of using the University of Buffalo and the Buffalo Erie County Public Library resources before they tap the State Library seems to be working very well.

Mrs. Garner: This would mean going to libraries in our own region before State Library?

Miss Connor: Yes, before State Library. But as our evaluative team looked at resources elsewhere in the state and probability of success, the NYSILL report advises us not at this time to expand further in regional programs, because there isn't in every region that same focus of strong institutions. Our present thinking is this. The most important thing is to have a statewide service available to all and not to fund and go into the cost of 9 regional systems of interlibrary loan until we are sure that they are necessary and will be effective. Obviously there is a balance here and it does relate to existence to local resources in one region in comparison to another. The way is not entirely clear; I'm simply saying that the regions themselves are talking about this.

Dr. Yelton: I take it they start out from very different levels of strength, as most of us know. There is time for another question.

Mr. Jason Carnright, State University College at Plattsburgh: I was wondering if you could tell us what the other New York State councils are actually doing for professional people other than the academic community – especially for business and industry. Have they undertaken anything such as we are undertaking now or have they gone further ahead on some and how receptive has business and industry been?

Miss Connor: May I say that I think that a more complete answer would come from E.J. Josey. At least I hope it will. May I call on you, E.J.? Is there something in Buffalo we should report here?

Mr. E.J. Josey, Chief, Bureau of Academic & Research Libraries, New York State Division of Library Development: In Buffalo, there is close cooperation between the Western New York Library Resources Council and the Technical Information Dissemination Bureau, which is the STSP organization in that region. As a matter of fact, the director of TIDB, Mr. Lazorick, is a member of the board of trustees of the Western New York Library Resources Council. Involving STSP personnel in 3R's affairs is certainly one way of strengthening the relationship between STSP and the 3R's. The Technical Information Dissemination Bureau in Buffalo does provide a current awareness in several scientific fields, for a fee.

Unfortunately, there have been people in the STSP program who have felt that the STSP program is not related to libraries, but I would like to give one small illustration which proves otherwise. The STSP office in Rochester is located in The University of Rochester's library, and on one occasion the answer to a research problem for one of the major industries in Rochester was found in an obscure Indian scientific journal that is in the University of Rochester Library's collection. Dr. John Russell, the former Director of Libraries at the University of Rochester, related the story to me with great pride, for he, too, saw where a meaningful relationship could be established between STSP, which is geared to assist business and industry, and the 3R's program that shares the same goal. In general, all of the 3R's councils have made it crystal clear that they

are interested in serving all researchers including business and industry.

Mrs. Ottilie Rollins, Clarkson: I would just like to add that we here at Clarkson College have also worked out a cooperative arrangement with the State Technical Services people. Their office is located in the Clarkson library and Mrs. Doris Frazer, who is assistant director of the Clarkson Technical Information Center, is thus able to use the resources of Clarkson's library. Since Clarkson is primarily a technical and scientific college, these prove of great value to her. On the other hand, Mrs. Frazer is able to purchase more specialized materials which are not provided by the college library, but are placed there for the benefit of both Clarkson's Technical Information Center and Clarkson College's library.

Mr. Josey: We would like to commend Mrs. Rollins and her staff and Mrs. Frazer for what they are doing. I did not mean to leave you out. But I would like to say this is a very delicate marriage between the library and the State Technical Services Program. Let me once again inform you that the Rochester program is like this program in that it too is established at the University of Rochester Library and the STSP program in Rochester is also directed by a librarian. But you and I know what must be done in this particular area. We have a great difficulty with engineers. They claim that they transmit their information orally. The problem is the lack of awareness of what libraries can do, and I think in this kind of conference we can encourage scientists and engineers to be aware of the fact that libraries can aid them. This is not peculiar to American engineers, for the Library Association of Great Britain has recently published a study which dramatically shows that British engineers do not make use of libraries but would make use of libraries if they were aware of what libraries can do for them.

Miss Cornelia Pope, State University College at Plattsburgh: I notice that there is some money set aside by both the State Library and individual councils, for the microfilming of local newspapers, but I wonder if any money is being earmarked for the indexing of those newspapers.

Miss Connor: Unfortunately, there are no such funds in this year's budget. It's true we see the need for funds for additional microfilming and have had a State Library interested in assisting regions in this and as I said there's an interest in a union list of newspapers. I am not familiar with pressure for indexing but if this is an expressed need, we will be glad to have you press us for it.

Dr. Yelton: Thank you Jean. I see no hands up now, and I think due to the pressure of time we will move on. There should be opportunity certainly in the discussions tomorrow for further questions.

To encapsulate Mr. John Humphry, our panel moderator, for purposes of introduction is rather a daunting task. His professional career seems to call for a Victorian three decker. And this perhaps may some day be supplied by some other hand than mine. John Humphry is an alumnus of Harvard and then of Columbia University Library School like our keynote speaker. Then he went back to his alma mater to enter the library profession at Harvard for a number of years both before and after the war with an intervening period in service in the Office of Naval Operations and doing technical work also for M.I.T. And then after further years with Harvard and an intervening year with New York Public Library in his early career, Mr. Humphry went to Enoch Pratt, one of the great public library systems in the country and served as Director of Processing there for two years. Then came a long and obviously fruitful professional association with the Springfield library system. He was Director of the city library in Springfield, Massachusetts for sixteen years and during the latter part of that period was also director of what I take to be a sort of cultural holding company, a conglomerate of libraries and museums, that they have in Springfield. He was Director of the Libraries and Museums Association of the city and during that period was also a member of the Board of Commissioners of the state of Massachusetts and I believe President of that organization. I shall not proceed to all the consultantships and the committeeships and the visiting directorships that Mr. Humphry has had. After leaving Springfield he went to Brooklyn Public Library. Many of us remember him as Director of Brooklyn from 1964 until last year when he was appointed by the Commissioner of Education as Assistant Commissioner for Libraries of New York State and that's the distinguished position that he holds now. It is our privilege to have him here moderating this panel. I believe Mr. Humphry will introduce his panel.

John A. Humphry: Thank you very much, Don, for a very cordial welcome and a generous introduction. I should like to tell you how happy I am to have been invited to participate in this conference because the very invitation is the reflection of the cooperative spirit that exists in this area among the private and public colleges and universities and the other members of the 3R's council and the inter-relationship of the public libraries, the private libraries and the academic and special libraries. We're all working to-

gether to get an information system of which we can be proud and which will serve the public, the people of New York State. I'm very much interested in the questionnaire which has been distributed and the fact that you have been afforded an opportunity to divulge your ideas and suggestions on the way that this information program might proceed, and I urge you to complete the questionnaire and return it so that the leaders here can be given the direction which they seek in further refinements of this information program. I wish to compliment you just as E.J. Josey did because it's this kind of publicity and getting the program in front of people that is going to sell its worth and value. It was interesting to hear the Senator say in very clear English that as soon as we have a good strong case and a lot of lobbying and a lot of talking from the taxpayers we're going to get more and better results and this is the political fact of life. So this is a worthwhile step in getting before the people what is being offered in this North Country Reference and Research Resources Council.

This is a further refinement and a logical development in the library program of New York State. The public library systems have produced this kind of information for the general public, and the public library systems are to be commended and complimented for working together, for working toward this kind of program that has been achievable only through this kind of cooperation among public libraries joining forces, forming systems, receiving state funds, as an incentive to working together. So we have here a firm and broad base on which to build a more sophisticated information system; and we want to bring in industry, business and government and as E.J. Josey said too, here is where we touch base with such programs as the State Technical Services Programs administered through the U.S. Department of Commerce where each state designates an agency to get to business and industry information that will help them survive and progress and proceed with the kind of development that we heard mentioned by the Senator today. So you're playing right into the hands of the needs of business, industry and government by what you are doing and doing well.

This information system is somewhat in greater depth than the public library systems, as Miss Connor has mentioned, and it is achieved through a variety of approaches. First of all, these systems are no good unless we reach people, the users, the consumers of information. We should keep in mind at every turn, what does this program do for the consumer of information and how are we going to develop these programs with their needs in mind, gathering and disseminating information by a number of techniques, one of them being this job of automation? We're not going to let the world go by, as librarians, and say it's too bad we didn't get on the band wagon and use computer applications to library procedures. You heard Jean Connor mention the programs at the state level and at the regional levels. This is of vital importance. We'll be buried within the next few years if we don't do something with automation. The proliferation of information and the demands of education and of business and of industry and of government dictate the kind of program that we see developing here throughout New York State and the nation. The New York State Library pledges this kind of leadership in meeting the information needs of everyone through mechanization, bibliographic work, better delivery systems, copying and by an aggressive program of information services. We're no longer a standby operation. We can't wait, we have to go out into the community and sell, and we heard that this noon too. We have a product to sell and we should be proud of it and we should sell it. We can't talk to ourselves, we need to talk to our colleagues in information systems, and that brings me to the subject of my responsibility this afternoon. We don't intend to work alone at the New York State Library. As you heard Jean Connor say, we must relate to other information programs that are developing; and there are many information programs that are developing. Some are very specifically related to libraries and some are less obviously related to libraries; but they all deal with information. I again assert the fact that libraries are going to be in the mainstream of information gathering and disseminating for the benefit of the people who pay the bills.

Our first panel speaker will be Mike Kerwan who is a member of the staff of the SUNY Biomedical Communication Network. Jean Connor mentioned this program too. This is a special kind of networks-for-knowledge program and one that I think has a tremendous potential and one in which we should all have a deep interest. Mike is a native New Yorker. His education, Community College of Corning and at the University of Buffalo. He's a mathematician by descipline. He has been working with Mr. Pizer for two or three years and he's going to lead off to tell us something about the network.

Michael Kerwan, Biomedical Center, Upstate Medical College

Some of you may have heard about the Biomedical Communication Network; some of you may have seen

its terminals in operation, but I suspect that most of you haven't, so I am going to start with a brief discussion of what the Network is and what it does. It is an arm of the State University of New York which provides services to medical libraries. It is currently serving libraries in Buffalo, Rochester, Syracuse, Albany, New York City, Boston, Massachusetts, and Bethesda, Maryland. One service which the Network provides, and has provided for some time, is a communication link for Interlibrary Loan Requests, but its primary service since last October is the use of an information retrieval system which provides references to books and the journal articles which satisfy criteria specified by the user. When I say "user" I mean the user of the medical library – in our case this would be medical researchers, medical students, physicians and, of course, medical librarians themselves. This service is designed so that it can be used by, say, a medical student without the necessi y of going through a librarian. That is, with a minimum of instruction, the user himself should be able to frame the criteria so that the computing system can understand them and give back the desired results automatically.

I think that you would be interested in the means by which this is done. The user comes into the library with a particular subject in mind – something he is doing research on perhaps – and goes to an IBM 2740 terminal which is part of our system. (For those of you who may not be aware of the physical appearance of these terminals, they look like teletype machines or ordinary electric typewriters. The only difference between the terminal and an electric typewriter is that it is connected via telephone lines to our computer in Syracuse.) The user types in the word "START" to begin. This signals the computer that the person at the terminal is interested in searching for a particular subject or particular authors or whatever. The computer will engage in a dialogue with the user. The computer sends questions over the telephone line to the terminal which are typed out; the user then responds with answers specifying the criteria which he wants the books or the journals articles to satisfy. I am not going to go into the details now of how these criteria are specified, since Mrs. Baxter will describe them in a few moments.

I understand that a few of you may be interested in the technical details of the equipment we are using, so I will very briefly list them and if any of you are interested in more specifics you may ask questions or see me individually. We are using an IBM 360 model 40 computer with 256k core storage. We are running under OS MFT and our data is stored on two 2314 disk units. Our programs are written in assembler using BTAM for telephone communication. The search routines are provided by the IBM Document Processing System which has been specially modified for our application to allow input and output on the 2740 terminal. We have a total of 21 of these terminals in use at this time. Each one is connected to a leased telephone line.

This is a basic introduction to the SUNY Biomedical Communication Network and what it does. I'll leave it to Mrs. Baxter to specify the actual searching procedure that the user would employ.

Mr. Humphry: Thank you, Mike. Mrs. Baxter had five years of programming experience at the University of Iowa before she came to SUNY Medical Center at Syracuse, where she has been working for the past two years. She is going to continue to describe the system where Mike left off.

Mrs. Mary M. Baxter, Biomedical Center, Upstate Medical College

First I will describe what data is available to our terminal users for searching. Next I will present a general description of the basic components of the data and how they relate to the process of searching the data. With these general descriptions as background, I will describe how a very simple search can be entered via a terminal.

There are three basic sets of data available for searching. The first is the MEDLARS journal citations which are from the National Library of Medicine. These citations are biomedical journal articles indexed by NLM. All of the 1968 citations, 218,000 articles, are available as well as the first five months of the 1969 MEDLARS data which consists of 90,000 articles.

The second set of data available for searching is the monograph material which was indexed by three of our Network libraries, Upstate Medical Center, Downstate Medical Center, and the Health Sciences Library at Buffalo. There are 11,000 monographs in this set, 8000 of which are indexed in depth.

The last set of data consists of 23,000 monograph citations from the 1967 Cumulative Catalog from the National Library of Medicine.

All three of these sets of data have two general components. The first type of information is biblio-

graphic data. This is the data on a catalog card such as author, title, place of publication, and language of publication. The other part of the data is the indexing terms, or subject headings, which describe the content of the article.

When the data is put onto disk storage devices for searching, it is structured in such a way that the indexing terms, subjects and/or subjects with a subheading, and author names are entry points to the citations. This means that in order to search and retrieve data one of the entry point words must be entered through the terminal. When a word which is a valid entry point to the data is entered, the system knows almost instantaneously all of the citations which are described by the word.

If several subjects, or entry points, are used in the search, they must be related to each other using "AND" and "OR" logic. If the search is "smoking AND lung neoplasms", the citations which are indexed by **both** subjects will be retrieved. If the search is "smoking OR lung neoplasms", the citations retrieved may be about one subject or the other one or possible both subjects.

Once the entry points to the data have been entered on the terminal, the search can then be restricted by the bibliographic data. For example, you may want only those things published in 1969. Many bibliographic restrictions can be imposed on any particular search.

The procedure for entering a search via the terminal requires very little technical knowledge. The user must be told two things before he starts. First he must be taught to operate the control keys on the typewriter terminal. Secondly, there are a few simple conventions used in answering the questions in the "dialogue" with the computer.

The terminal is operated very simply. The key with the word "BID" on it, which is located on the right side of the keyboard, is pressed to unlock the keys for typing in a response. The key with "EOB" on it, which is on the left side of the keyboard, is pressed when the response has been typed and is to be sent to the computer for analysis. Entering the response to the question is just like typing on a typewriter.

A dialogue search is initiated by entering the word "START" on the terminal. The first question is typed back on the terminal. The user answers the question and types the response on the terminal. The computer programs analyze the answer to determine which question to send back next. This question and answer sequence continues until enough information is collected to perform a valid search.

In addition to the word "START" to begin a search, the user must know that a question is answerable by "yes" or "no". He must type in a "Y" for "yes" response or an "N" for a "no" response. For multiple choice questions only the letter beside the response is typed in and not the whole response.

The user must understand our terminology when we use the word "group". Subject words are "grouped" in order to show "AND" and "OR" relationships. Subjects which are entered in the same group are "OR"ed together. All "groups" are "AND"ed together. If only two subjects are wanted in an "AND" relationship, the subjects are entered in separate "groups" and then the search programs "AND" the groups together.

Keeping in mind the "group" definition, suppose we go through the procedure for entering a search which would retrieve citations about both smoking and lung neoplasms.

After we enter the word "START", the first question, "DO YOU WANT TO SEARCH ONLY BOOKS?", is typed out. This question is asking which set of data you wish to search. A "Y" or yes response means that the Network monograph data and the 1967 NLM cumulative catalogue data will be searched. An "N" or no response means that the 1968 MEDLARS data and also the Network monograph and 1967 NLM cumulative catalogue data are searched.

The next question which is a multiple choice question, asks what type of search you want, i.e. do you want to use subject words, author names, or both as entry points to the data. Our example is a subject search so the letter "A" beside the choice of a subject search is entered.

Then the dialogue comes back, "THIS IS THE FIRST SUBJECT OF THE FIRST GROUP", the first subject "smoking" is typed in. Then it asks, "ANOTHER SUBJECT TO THIS GROUP?". Since we want an "AND" relationship between the two subjects, the response is "N". Next it says, "DO YOU WANT TO BEGIN ANOTHER GROUP?". The words "lung neoplasms" are typed in. Again it asks if you want another subject in this second group. The reply is "N" for "no". It also asks if you want to start another group again. Reply "N" to this also.

After the entry point words are entered, questions asking if you want bibliographic restrictions are sent to the user. After these are answered, a message saying, "YOUR INQUIRY IS BEING PROCESSED" is typed back. At this time your search is being processed by the computer. Other questions are asked during this time for statistical purposes which keep users busy while the search is in process.

After the search results are typed back, the user can ask for the volume of the journal containing the article. If it is not in his own library, the name of the next closest library is given to him. The user can ask for the call number of a monograph or the name of the closest library which has the citation.

I hope this description of our data and the use of our system has provided some general information about the Biomedical Communication Network. I will be glad to answer any questions you may have later.

Mr. Humphry: Thank you for complementing Mike's presentation. We'll get back to questions after we have heard from the other panelists. Our next contributor is Mr. Dudley Samoiloff who has had editoriai experience in scientific publications, as an editor with John Wiley & Sons. He's a graduate of Tufts University and has been with University Microfilms, which has recently joined the Xerox family, since 1966. I know that we will have an interesting contribution from Dudley Samoiloff.

XEROX AND INFORMATION SERVICES

Mr. Dudley D. B. Samoiloff, Xerox Corporation

Our after lunch speaker spoke about 50 years out in answer to a question about a jet airport for this area. That puts me at a disadvantage because I can't think that far out. In fact I really would like to confine myself to things that Xerox Corporation or University Microfilms has or is thinking about today for the next five years. I will not discuss any fantastic new unique developments and I'm not going to parade statistics to show the growth in the information explosion and I won't recite any of the usual predicted wonders of holography, computers, information and communication systems, lasers or what have you. I should like to tell you a little bit about our mission, some of the problems that perhaps you and we share, suggest some solutions, note some trends and then do the unforgivable, give some advice.

Our Mission

At University Microfilms, and Xerox too, we see ourselves as facilitating the pyramiding of research that is carried on in science, engineering, the social sciences and the humanities. By that I mean we try to reproduce inexpensively the results of research of those upon whose shoulders modern day researchers are standing. In view of this our path is very clear. We're concerned with the intellectual content of scholarly materials and the transmission of whatever physical or non-physical entity that intellectual information is, to other people. Seen this way our job is to provide an aid to the researcher – not selling machines or tape, books or whatever type of product. In doing this we encounter problems that I think you as well as we share. We have difficulty in locating information or data and documents. Also, even when you've located it some people aren't sure what they want, and if you know what you want and where it is you don't know whether you can get it, and if you know where you can get it you want to know how long it will take and what you have to pay for it.

I have some visual aids here which I am going to use to simplify things. Xerox, as you may know, moves pretty fast and in spite of my other business colleagues in the panel I think we do a lot of interesting things. Sometimes even we are surprised by some of the things we do. Recently, living in Ann Arbor where I do, which is the home of Students for a Democratic Society, I was a bit perplexed to see a headline in the XEROX WORLD, our in-house newspaper, "Xerox to acquire SDS" but we did and it was Scientific Data Systems, not Students for a Democratic Society.

The problems I just mentioned are simplified somewhat here by identifying the research needs of users, establishing bibliographic control, facilitating access, and providing the proper format and service. In considering these further I find that we have certain constraints on us in identifying research needs; that is, we can't commit the entire contents of recorded knowledge to one medium. So the constraint there is one of selection. What shall we select to provide? We select what is worthy and valuable of conversion. Then the problem of authority arises. Here we use authoritative lists, or bibliographies and catalogs as guides to what will be reproduced. The constraint here is the existence of guides and we solve that problem by

either using what is available, such as a published bibliography or we commission one to be made, rather than going out and reproducing a collection just because it is available.

Bibliographic control, however, I think is one of the most crucial problems that we face and I don't need to reiterate that for you who are library-oriented. We are trying to improve our bibliographic control of materials we have by providing external finding guides such as catalog cards and bibliographies and lists of titles. We provide internal guides within the material that we furnish, for example, on microfilm by checklists or contents, a catalog card for each item filmed and notation of variances concerning that title. We note omissions and the selection criteria we use; we identify the source of the material reproduced in most cases. So, we use guides for each of our series that we publish, we use catalog cards for each item in them, we note variances and selection criteria, and the source or the library from which we secured the document for filming. On the matter of format we try not to get tangled up in what's best for what, but simply choose the medium that seems best for the material. Basically, we look at the u .. record for reports and books such as microfiche and microfilm for serial material, such as a periodical. The computer we see as being for data acquisition and manipulation and as an accessing tool for documents stored elsewhere. We look upon the magnetic tape as best for customer searching and manipulation of material, and print for cases where a large number of customers and aesthetic reasons seem to prevail.

Service is a problem. Part of it is a result of growing a little too fast. I say that by way of saying I know it's not what it should be and I hope it improves. We do have some problems in getting material filmed in the way we like it to be. We reject film constantly that we order from the British Museum and the Library of Congress because it does not meet our standards, and so we're somewhat hampered by our own insistence on quality.

Our Point of View

We have an approach to providing materials for our users which can be surmised, perhaps. We try to avoid hardware dependence. We are not particular about what you use to read anything or how you look at the information. We don't want to be dependent on someone else's machines, so we've produced our own machines to meet certain needs. We recommend others when they are applicable. We will continue to acquire data and documents. University Microfilms does not have a data or information product. We really sell only documents. Most of you, when you're talking about information systems are talking about document systems. We focus upon the user or the customer and his needs. There is a distinction here between the user and the customer because by-and-large we're selling to libraries which are customers, but our users are people from outside the library who come in and want something from the library. So we have a problem in trying to meet both sets of needs, some of which are different and opposite.

We try to stress bibliographic control, and we are constantly trying to improve our own.

We see the computer as a accession tool insofar as our product and services are concerned.

We print or produce the document for the customer or the user on-demand – we do not carry an inventory. For example, we sell a document, an out-of-print book or a back copy of the JOURNAL OF COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY on-demand.

We are looking at higher reductions in microfilm all the time for economy and for other reasons as well. We are somewhat hampered in this by the reader and the reader/printer situation, which is not ideal. We must develop better readers and reader equipment that can handle all media such as 16, 35, fiche, aperture cards and whatever. We have one coming. A very small, compact, portable reader that will handle all formats but only in a reading mode not in a printing mode.

We are beginning to add non-book and non-serial information, to our product lines. We are now committing to microfilm a lot of material relating to financial reports such as 10K ANNUAL REPORTS required to be submitted to the Securities and Exchange Commission. We are looking more and more at publishing systems in order to serve the needs of both the publishers of information and the library users, particularly not-for-profit publishers who are in a terrible bind. We see the ability to serve a few existing needs of publishers.

Trends

Some trends that we foresee in information services. There will be fewer middle men; by that I mean libraries that act as middle men between the producer, the originator of the information, and the

user, the person who seeks it. This is being done by telephone, preprints, travel, meetings and a lot of other notorious activities. A study was made in physics which showed that in certain areas, mainly in high energy physics, there was more transmittal of information and communication by telephone than any other means. High in the scientific hierarchy those who read the journals indicate by so doing that they do not know the field.

The breakdown of scholarly publishing systems I think is a fact of our life today. They are unable to keep up with the volume of articles coming in, the time-lag to publication is increasing, the page charge concept initiated by the Federal Science Policy Board back in the late 50's is not working for certain areas of science now. These publishers are in a very tenuous position, particularly financially.

Changes in the library function. I think there have been many references here today to the fact that there seems to be a change from the library as a curator of books to libraries as sources of information. This view is a distinct change in the way of looking at yourself in your role as the provider of services to users.

I think the computer will continue to exert influence particularly insofar as the associated cost of using it decreases, and the size of the machine physically is decreased with a concomitant increase in the performance of the machines.

I think the coupling of microfilm, computers and communications is very quickly becoming perhaps the most significant bellwether of the direction information and transmission and dissemination may go in the future. I might go beyond five years on that one. Maybe ten years, but it's certainly with us today.

Indiviuualization. I think that there is a distinctly non-herd-like attitude among many of the users of information. Our customers are getting more ornery all the time. They don't want things they used to. They want them their way, now, and this trend on the campus and everywhere, I think is one to be reckoned with. We have to deal with individuals, you can't deal with classes and groups and vague generalizations the way we used to. That comment is directed particularly toward businessmen.

I think internationalization of information is coming very fast. The chemists, the physicists, the electrical engineers, and recently the social scientists, are beginning to conceive of a vast network that must be pulled together. I think that in the social sciences some very startling things are discovered by scholars who visit Europe and find that there are things going on there that they were not aware of because research results are not generally sent to the United States for publication in the social sciences the way they are in physics and chemistry.

The tempo of change and the rate of change in society in general, is significant.

I think the existence and development of information and computer utilities is another thing to be reckoned with. This is an area, particularly the information utility, where industry will provide standardization and unique services, hopefully, at low costs, not possible by individual institutions or libraries. The concept of the ownership of knowledge is related to that individualization trend that I mentioned. The whole concept of the ownership of author-created-work is going to change radically in the next fifteen years, maybe even sooner. It is going to take the government a long time to rewrite the copyright law but there really is a good deal of questioning about who owns what, why, for how long, for what medium. It is very print-oriented, the copyright law – what about computer storage, what about film, what about other methods, who controls it, how, what is the library's role? Something is going to change.

Advice

I think the challenge to us and to you is to provide what the user needs, quickly, and in any form he wants. We have to reckon with people who say "I don't want it on 35mm microfilm, I want it on microfiche and I want it in 98-page format and I want it tomorrow, can you give it to me?" Well, we've got to be able to do this and until we can, we're not going to be meeting the need and challenge, and until you people are able to give what your users need quickly and in the form they want it, I don't think you are going to be meeting your challenge either.

Organized effort to exploit collective strength and to avoid duplication is something you people seem to realize more than most library groups that we come into contact with. I think your Three R's concept in New York is amazing, very good. The New England Technical Services Program that will be mentioned tomorrow, I think is another example of pooling efforts to secure cataloging information and reductions in cat-

aloging costs. I would look toward automation in your libraries both for bibliographic control and housekeeping chores, and plan for it – at least plan for it.

I'm giving advice now as you can tell. I wouldn't take any nonsense from industry either. I thing you people accept, top readily, shoddy goods, bad pricing and so forth. We have made significant changes in our operations because of complaints and suggestions. You will want to be careful, particularly in the area of hardware. You will be the subjects of experimental equipment sold as pre-tested, marvelous miracles in the next few years more than ever before. I hope that you won't take it. Don't accept what you don't want.

To go back to many things said today, I would say the concept of selling your ideas to those who can give you what you need is most important. To relate it to what I just said, tell us what you want, so that we can provide it.

The last comment I would make is that, I've been rather brought up short by some of the students at The University of Michigan that we hire and some of the professors with whom we deal. There seems to be a curious kind of trend not to use libraries. I don't know how significant it is. I thought I'd just throw this question out to you. One student I had doing a project said that she hadn't been in the library at Michigan in about 1½ years and she was a low "A" student. Some of the professors I deal with are getting most of their information by mail from their colleagues or from commercial services like ISI's **Current Contents**. I don't know what all the implications are: I think they may be significant.

Mr. Humphry: Thank you very much, Dudley, for your thought-provoking presentation including the "no guts" concept.

We are pleased to have as our next speaker, Steve Furth, who has a real record of service, a forty-year service with IBM. He's a man who has an interesting academic background and an interesting career with IBM, and one who has served on many committees, who has worked to standardize and who has been a participant in many of the library-related programs as far as automation is concerned. We look forward to hearing from you, Steve.

Mr. Stephen E. Furth, International Business Machines

Thank you very much. First of all I would like to congratulate Miss Jean Connor and Mr. Humphry on the excellent library program of cooperation in New York State. Those of you who live here and work here probably don't appreciate how much farther ahead this state is compared to other states and other countries. As a resident of New York State I am proud of the progress that we have made in this state and I look forward to continuing progress.

I am going to talk first about some of the problems that the previous speaker mentioned and then I would like to give some specific instances of what can be done with the new technology right here and now and where it will lead to in the future. It doesn't surprise me that students at the University of Michigan hesitate to use the library at the University of Michigan. I had the privilege a couple of years ago of being invited to a meeting of a committee to design the Health Sciences Library. The committee consisted of very prominent librarians from Harvard, Washington University, and others and we met at the Mental Health Sciences Building at the University of Michigan and one of the librarians got a parking ticket for parking illegally on the campus.

It isn't easy to use libraries – public libraries, or company libraries, or university libraries. It isn't easy for you to get there, and it isn't easy to find a parking space, it takes a lot of time, and it is not necessarily an easy job to use the catalog and then to find that what you are looking for is not available.

Of course, we have already heard about systems that are being installed and a trend towards bringing the information to the user. At the present time most of the systems that we are installing, that we read and hear about, are systems to provide access to the information from a remote point. The speed of computers is going up and the cost is continuing to go down. Because of this great speed it is now possible to use computers on a time-shared basis. That means the library can share the access to the computer with other users on campus, or libraries can get together on a regional basis to share a computer. Therefore, the cost per user of a system such as the SUNY Biomedical Network becomes reasonable and can be justified within budget limitations.

A few weeks ago I attended a colloquium in Philadelphia on Information Retrieval and one of the speakers had just finished making a study of the M.I.T. Libraries. This was not related to Project Intrex. He reported some figures to be published in a book and I will be glad to give you the reference to this book which will become available sometime this fall. The conclusion that I can come to and the audience came to is that to add a title to the M.I.T. Libraries, if you have LC information, the cost is on the order of $16. This does not include the cost of the book. If you don't have LC information, the cost is $25. Several people in the audience said that that wasn't unreasonable – it might even be more!

Well to me, this is a staggering figure and it must be to you. But it is probably a figure that is reasonable in most instances when you consider all the costs that are involved. Therefore, it becomes even more imperative than it has ever been for us to try to avoid doing the same thing in every library, in a region, or in the state, or in the country. The point I am trying to make is that more and more regional and nationwide systems are being discussed and and are being implemented.

A lot of the material that libraries in the future will acquire is going to be material that has already been indexed or cataloged by somebody else so that you don't have to do it again. But what you have to decide to do is to accept this kind of indexing and this kind of cataloging because in the future you will not be able to afford to make substantial modifications to the bibliographic description or to the cataloging as has often been done in the past.

I would like to talk about some of these available machine-readable reference materials that are now being produced that you can buy and that will enable you to build a data bank that will serve the needs of business and industry in your area at a reasonable cost.

Before I go into the industrial and business area or the scientific area, let me say a few words about the MARC Project. The Library of Congress has begun to distribute machine-readable information on English publications published in the United States and hopefully, in the very near future, this will include English publications published in the United Kingdom because they have also adopted the MARC format. It seems only reasonable to assume that not every library in the United States or in New York State or in an area like the North Country here will subscribe to the MARC records and process them. Let me give you an example of one cooperative effort that is being considered in New York State. The Five Associated University Libraries of New York (FAUL) which consist of Cornell, The University of Rochester, Syracuse University, The State University at Buffalo, and at Binghamton, will undertake as one of its first projects the processing of information coming from MARC tapes for these cooperating libraries. Of course, in the beginning it will be limited to what I mentioned and it will take time until additional titles become available. The Library of Congress has already made a study of the conversion of the Library of Congress to MARC format so in the next few years we can expect to get not only current information but retrospective cataloging information from the Library of Congress in machine-readable form. So much for bibliographic information.

Many of the professional societies such as the American Chemical Society, Chemical Abstracts, Biological Abstracts, The Institute of Electric and Electronic Engineers, Engineering Index, and others are producing machine-readable indexing information to their journal literature. This is increasing at a rapid rate. As a matter of fact, some of these professional societies are beginning to use computers and typesetting equipment, driven by computer tape, to produce their secondary publication. And abstract journals are being produced by computer and, therefore, abstract information is becoming available in machine-readable form. I will come back to this as a means of indexing and dissemination of information a little later.

There is a mass of reference material being produced in machine-readable form that you can acquire today that will enable you to build a substantial data bank to serve business, industry, and the academic field in your area. What needs to be done is to cooperate and to agree upon accepting the kind of material with as little modification as possible so that you don't have to spend money and time and effort in order to modify what somebody else has already done.

Let me give you another example of the kind of information system that I am sure you have read about and I will go into a little more detail because it ties in with some of the things that the previous speakers have mentioned. And it is not in the field of science and technology but in the field of, if you will, current events. I think the announced NEW YORK TIMES Information Service is the kind of information system, that in the last third of the twentieth century, will be a model to other information systems. The NEW YORK TIMES about a month ago held a press conference in which they announced that they are going to establish

an information service. The NEW YORK TIMES' Morgue now occupies two floors of the NEW YORK TIMES' building – containing file cabinets with manila folders in which physically the clippings of the NEW YORK TIMES and other newspapers and magazines are being stored.

Any reporter or scholar who is now looking for information has to go to this Morgue and look for information through many, many files. The pages of the newspaper are being microfilmed and the NEW YORK TIMES has already put its INDEX, as you know, on a computer and has been publishing by photocomposition equipment the NEW YORK TIMES INDEX since January 1968. Starting in 1971 the NEW YORK TIMES' Morgue will be stored in a computer accessible from terminals. These will not be typewriter-like terminals but television tube-like terminals with a keyboard. Visualize a reporter now sitting in front of one of these terminals and keying in a question similar to the manner that the SUNY Biomedical Network people described earlier. Let us say he is interested in seeing information about Lyndon B. Johnson and U Thant meeting at the United Nations in connection with the Mideastern crisis. He will key that in and on the screen in front of him will appear the citations from the NEW YORK TIMES INDEX which include a fifty-word abstract – and there will be four of them, or eight of them, or twenty of them. He will scan them and he will say, "That's the article I would like to read."

Next to the abstract will be an accession number and he will key in this accession number and this will send impulses to the microfiche storage device which will automatically pick the microfiche, position it, and send the picture of the text of that article, including a photograph of Lyndon B. Johnson shaking hands with U Thant to the same terminal so that he can read that information and look at the picture.

According to the vice president of the NEW YORK TIMES who presided at this press conference, at sometime later – maybe in 1973-74, the NEW YORK TIMES will sell on a subscription basis access to this information base to the public, to universities, to state and federal government agencies, to industry. They expect to have 500 of such terminals around the country giving access to people from remote points. Now here we are beginning to see the kind of system that not only improves access to the information but brings the information, the text, the picture, to the user at a remote point. And I call your attention to the literature that we felt just a few years ago was "way out", which predicted that the library of the future sometime in the 1980's, will be a library that will have books, but will have a lot of other media to store information. People instead of coming to the library, for instance – students sitting at a terminal in their dormitories or in their classrooms, or the public sitting at home will be able to access the data bases of the area, and that area may be the entire state or it may be connected to a national network. Well, we are a long way from being able to do this because of cost, because of lack of standardization, but primarily because of something else which is important to realize and this is one thought that I would like to leave with you here.

It is the cost of **conversion** of this material, so that it can be stored in a form that can be retrieved and transmitted over telephone wire to remote points, that is staggering. And if we continue to publish in a form that makes it necessary for us, if we want to store it in machine-readable form, to sit down and re-keyboard this information again, then it is going to be a long, long time before we will get there. The point I am trying to make is that the information that is being generated should be captured in machine-readable form at the source.

Now I mentioned that some of the professional societies are already producing abstracts in their secondary publications in machine-readable form. Some of the professional societies are beginning to produce primary publications by means of computers. As a matter of fact the NEW YORK TIMES may some day be produced by computer as are quite a few other newspapers. Government documents are going to be printed by electronic composition devices. All of which means that the information is at a certain point already available in a form so that a computer could store it, retrieve it, transmit it to remote points. But we have to do more of it and agree on standards in the representation of characters.

If we deal with the NEW YORK TIMES, which is largely textual-type material, the character set that we are using is not a big problem but the American Institute of Physics needs 700 different characters and the American Mathematical Society is making a study of their character and symbol requirements and I predict that it will probably be double that number. These are challenges to these societies to agree among each other on standard symbols, on standard representations of scientific kinds of information, formulae, but an even greater challenge to equipment manufacturers to come up with equipment that can handle these

kinds of character sets.

As you probably know, most computer printouts are in upper case only and they are very hard to read if you have to read an abstract or a text of an article. There are devices now available that can print character sets up to 256 different characters so that you can print in upper and lower case and use special symbols, diacritical marks, provided that the input has been properly prepared.

This brings me to a point Mr. Samoiloff from Xerox brought up that "you should not take guff from manufacturers" and I include IBM in that also. I am in the same position that he probably is and that is that I have to tell my management what the library field and the information field needs and this has been a difficult thing to do. There is an absence of agreement among libraries as to what you need – and you have not lobbied, at least not with me, that you need this, that, or the other thing. And if people have said, "This is what we need," there were three people in the same room who disagreed with them and said, "No, we need that or we need it in this way."

I also plead with you to give a great deal of attention to better cost figures. A manufacturer like IBM, or Xerox, or whoever they may be, has to justify a market to its board of directors and to its stockholders. And that market depends upon how much, how many pieces of a certain device we can sell at a certain price. In order to predict what that market is we must have some better cost information from libraries and the report such as the one I mentioned from the M.I.T. Libraries will be extremely helpful and valuable to manufacturers of equipment for libraries. Libraries have been forced to accept in many instances equipment that was designed for other purposes and have been very ingenious in adapting this kind of equipment to their needs. I hope that in the future you can lobby with industry with facts and figures to indicate the kind of equipment, the kind of systems you do need, so that you will get equipment which functions at a price that will be responsive to your needs and to the needs of your users.

Thank you very much.

Mr. Humphry: Thank you, Steve, for a stimulating presentation. Our next speaker who will conclude the formal part of our presentation, Robert B. Smith, was born and educated in Canada and was a member of the Royal Canadian Air Force and in addition to his flying experience became interested in aerial reconnaissance which perhaps led him in his service with the Eastman Kodak Company as a chemist, which company he joined in 1946, to become interested in color photography and related activities, including television and motion pictures. He was assistant to the Director of Research for Kodak and participated in the military photography program. In 1958 he organized the Department of Information Services for the research laboratories of the Eastman Kodak Company. Like Dick Lawrence he served on the Governor's Committee on Reference and Research Library Resources with his conviction about libraries and the information programs they foster, he has been an invaluable man with conviction about the entire program that we're discussing today. It's a real pleasure to introduce to you now, Bob Smith.

Robert B. Smith, Eastman Kodak Company

To illustrate the magnitude of the information problem, just consider the fact that last year in the United States 27 billion dollars was expended for Research and Development. From this R & D effort came a tremendous flow of new data, new findings, new design information, etc. This information, along with the information from R & D the world over, is an essential basis for all research that is now going on. If, therefore, we are going to have effective research, we must have an efficient transfer of information on an enormous scale from innumerable sources to innumerable users. With each passing year, the problem becomes a little tougher. However, I think we are gaining on it because in recent years we have seen many innovations in the information field.

One of the most interesting changes we have seen is the steadily increased support by the Federal government of information and library services for both its own agencies and public services. I might just mention a few of the ways in which this support has been manifested.

The three great national libraries: the Library of Congress, the National Library of Medicine, and the National Library of Agriculture have been generously funded and their services expanded. Over 300 data analysis and information centers have been established in the United States, e.g., the PLASTEC service at Picatinny Arsenal, the Defense Documentation Center in Washington, NASA information facility, and Medlars. There have been developments in document delivery systems that are typified by the activities of the Federal

Clearing House and there have also been developments in abstracting services in the Federal government. These are only a very few examples of the very great amount of support that has resulted in a broad spectrum of new services in the United States that are available to the public as well as to government agencies. Unfortunately there are many instances that we can point to where it appears that these new services are practically unknown to people in industry. Certainly, we can say that the new sources of information are not fully exploited by an means.

During the last ten years, we have seen a whole new application of computers develop in the information-handling field. Ten years ago the application of data processing in the library was a novelty and anytime anybody did anything, however trivial, it was hailed as a great advent. Today, as Steve pointed out, computers are commonplace in library operations and in the searching of sizeable data banks. There are a growing number of places where people are already "on-line" with computers providing library-type information.

Another most important innovation has been the development of relatively inexpensive copy equipment. Copiers have made a major change in the pattern of distribution of library materials. We have moved a long way towards library systems which are distributing libraries using non-returnable copies rather than circulation copies. It is clear that this is the direction in which libraries are going.

The field of microform publication continues to develop rapidly. Last year NASA distributed something like 12 million microfiche and the total count for all federal agencies would run to many more million. Several professional societies are distributing journals and bulletins in microform today. In the field of chemistry, for example, something like 100 journals are available on 16mm microfilm. Microfilm collections of abstracts are now commonplace. For example, Chemical Abstracts Service now provides the entire set of chemical abstracts - some 4 million items – on microfilm. Current manufacturers catalogs and data sheets are available on microform. Some of these catalogs contain as many as ½ million pages. They constitute a sub-library in themselves.

Magnetic tape based indexes, bibliographic files, and abstracts are a fact of life. As Steve Furth has pointed out, magnetic tape records provide the basis for many important information services. It is just this very week, I believe, that Engineering Index has announced COMPENDEX, which will be a magnetic tape record of all the material handled by the Engineering Index.

It is obvious that much has changed in the last ten years with the introduction of all this technology. Except for the consequences of the quality of indexing and abstracting and the lack of good systems of organization, technologically we can do anything we want right now. There is no question – we could build a fabulous technologically based system today if we wanted to. But we won't do it, because it costs too much; and anyway, in my opinion, it would not work very well simply because we haven't funded the intellectual operations of indexing and abstracting information, or developed a system for organizing the files that is the right kind for the volume we have today. The question of cost and cost-effectiveness, I think, is the key thing controlling the application of technology. Because of this, I think, we will see that libraries and regional centers, such as you have, will have to introduce things on a piecemeal basis and justify changes as you can. The cost along with available manpower trained and experienced in the new technology and in sound systems work will be a limiting factor for some time to come.

Since the cost of information services are high, and they will continue to grow higher with the volume of information we have to handle, we'll all have to work hard to develop profitable systems. No company or organization can be self-sufficient in this field. We at Eastman Kodak Company are interested, as are other companies, in working "profitably" with other people.

We are fortunate at Kodak to have a pretty well developed library system, but we do need the help of other libraries. The public and university libraries and our relationship with these institutions are of utmost importance. More recently the Rochester Regional Council has become a vital link in our information activities. I would like to say something about how we interface with that Council by talking for just a few moments about one of our activities, i.e., our current awareness services.

We are a chemical company and employ several thousand chemists. The chemical literature is very voluminous, its rate of growth is enormous and, when we examined the situation recently, we found that chemists were spending excessive amounts of time trying to keep up. It seemed that some did nothing else. Something had to be done about this.

Chemical Abstracts has been growing in size continuously. A few years ago, let's say ten years, there were probably hundreds of people around the place who subscribed to Chemical Abstracts and looked through those volumes abstract by abstract. Five years ago there were only six hardy souls left doing this and now there are none. Nobody subscribes to Chemical Abstracts anymore. Consequently, we have introduced many activities to try and look after this problem of keeping up. For example, we have a circulation system which has been automated. We operate a personalized table of contents service. It is a simple thing, but an effective way of handling those very popular journals which need to be looked at by a large number of people. In the case of the Journal of the American Chemical Society, for example, there are something like 250 people who have signed up to receive its table of contents. Circulation of tables of contents is a very effective technique for those core journals that are frequently used.

A few years ago, we began to experiment with selective dissemination of information. I think you people are familiar with this computer technique with which the interest profiles of clients are compared against the profiles of documents in the data base. At some pre-determined level of match between document profiles and people profiles, a notification is sent. We began with the material available from Engineering Index in the field of polymer engineering and electronic and electrical engineering. These are relatively small data bases. I think, at this time they include about 44,000 items per year. About two years ago when Chemical Abstracts began publishing **Chemical Titles** on tape we introduced this as a basis for selective dissemination to chemists. **Chemical Titles** is a record of all the titles in some 750 key chemical journals and includes about 130,000 items per year. It is an unstructured base consisting only of titles and the journal references, i.e., no indexing is included. About a year ago, when Chemical Abstracts introduced **Chemical Condensates**, we began to work with this data base. This publication is a tape record of everything that comes into Chemical Abstracts. During this year, there will be something like 260-270,000 items come through. These tapes issue weekly and each tape contains about 5,000 items. Obviously, the matching of profile terms of a large number of chemists against this many items is a job that only a computer can do. Material is drawn from 13,550 sources for the Condensates, which is a structured data base. By structured I mean that subject headings or descriptors assigned by the indexing staff at Chemical Abstracts are included.

These SDI programs are experimental. We are trying first of all to evaluate SDI and then measure the effectiveness of the use of an unstructured versus a structured data base. We are trying to learn something about costs. We are also comparing this kind of current awareness against other types of services. One of the programs we are particularly interested in is trying to discover how effectively we can handle "group profiles" as against "individual profiles". A study of this type is important, as we find that the cost runs 10-12c per notification for **Condensates**. In the case of **Chemical Titles**, costs are of the order of 4-5c per notification. At the present time, we have about 300 profiles and are sending notifications to about 1000 people. Our selective dissemination programs are delivering something like 30,000 notifications to people in Rochester and at Tennessee Eastman and Texas Eastman. Now this is all very well, but at this point our trouble starts. Once we have sent all these notifications to people, they are interested in seeing the original articles. A large number of difficult-to-fill requests come back to the library staff. Here is where the Regional Council has proved to be a tremendous help to us.

We have adjusted our own holdings within the Company so that in the case of **Chemical Titles** we can look after 80% of the requests for full text from our own resources. We send the rest downtown to the Regional Center where they can look after another 15% locally, mostly from the University of Rochester library. Then, another 5% are sent by TWX to Albany and from there to the New York Public Library, or one of the other university libraries.

With **Chemical Condensates** we have an entirely different problem. The items are drawn from some 13,500 sources. There are a great number of Japanese and Russian items from all kinds of obscure sources that many librarians have never heard about. We have to send something like 60% of these items outside of the Rochester area and, obviously, we have to have access to a very good network. We have. We have developed a union list of company holdings in Rochester. All of the companies have contributed. This was a relatively easy thing for us to do for the Kodak holdings, since we have the information in digital form. The University of Rochester and the Public Library serial holdings are in a different list, but available to all the librarians in the area. Thus everybody can work pretty effectively in deciding where to route requests.

In general, we have found that any item requested by our library from the Rochester Regional Center and that can be looked after locally, is supplied to us and is very often in the hands of the requester within two days. In the case of the requests that go down the NYSILL pipeline, the performance isn't quite as good, I'm afraid. It takes ten days, sometimes longer than that, for items to come out of one of the New York State libraries. There are a large number of things that we have to look after ourselves because the New York State system does not interface with any other system. This is sometimes a very discouraging situation because our librarians find that sometimes months go by before an item has been tracked down. Nevertheless, this Regional concept and the national network are key factors in the whole SDI program, because without that resource and that system, SDI would be an exercise in futility. I think all we would be able to prove to the people that use this service is that they have an information problem and I think they already knew that. This relatively simple cooperative arrangement that has been established in New York makes all the difference in the performance of the system. It so often turns out that simple things done well make the difference in the success of a sophisticated system.

Every morning of the working week a truck leaves the Public Library, works its way down to the University, over to Rochester Institute of Technology, over to Xerox and then to Sybron and Kodak. Twice a week it ranges a little farther out to Brockport and Geneseo. This is another of those simple arrangements that is very effective. The truck, the driver, and the system that has been worked out for delivering documents are tremendously important factors in improving the performance of our SDI system.

Another development of great importance to us and, I think, to all of you, is the growing list of regional subject specialized information centers. These can be tremendously important to operations like ours. The ones that I am familiar with are at the University of Georgia, the Illinois Institute of Technology, and the University of Pittsburgh. These people have now received and are working with Chemical Condensates to provide SDI services to chemists in several areas of the country. They are also planning to build a data base for retrospective searching. In the case of the University of Georgia, they have now received a magnetic tape record of all the one million compounds which Chemical Abstracts Service has put into machinable form. They are beginning to develop a retrospective searching service based on that data base. We are interested in evaluating these systems at such centers. If the University of Pittsburgh, for example, can provide cheaper service than we can ourselves, we are going to take our business there. It looks like a certain part of our SDI operation might just go that way. I mention this point because it seems to me that a Regional Council like this one can begin to interface with centers of this type and begin to use their computer facility. You do not have to wait for ten years for specialized centers to be developed. You can actually begin to use these services today.

I also understand that there is the possibility that COMPENDEX will go into each of these three centers and others. This is a very important development. I am sure that there are a lot of people up here in the north country who have a need for SDI services for engineering literature and that they don't now have proper access to it. There may be a way for you people to immediately jump into this kind of thing. I think it would be perfectly feasible for you to think of making use of the services of one of these centers to, in effect, put COMPENDEX right here in Clarkson or in Plattsburgh and begin to experiment with an SDI system. To me, it is perfectly clear that the technical advances combined with the regional concept makes it possible for you to interface with these big centers which can justify the sophisticated equipment, because they will have thousands of clients. In this way, you will be able to bring their service into this area at a reasonable cost. However, I don't think that you should expect that the development of these centers will relieve this Council or companies in this area of the responsibility of developing their own library services. It will still be necessary for each company in this region to have certain key holdings (in clearly defined subject areas) to provide the best possible service to its people.

If there is a high level of interest, you should also think seriously about a retrieval system for certain defined subject areas. I think that it will be possible very soon for you to receive everything you need for your own specialized data bases from one of the specialized centers. It is important for those who are running a regional center like this to be in touch with these developing centers and to learn how to interface with those organizations where there is a data base of interest to companies in this area. I think the point I am trying to make is simply that a regional facility or an in-house facility within a company should be planned with respect to what is going on in the New York State network and in the national network

of information centers. It would be foolish to do otherwise.

I don't think you have to wait any longer – to begin your long range planning – the way to the future is clear now. It is possible for you to go ahead and develop your own system and also to develop the personnel with systems background who can interface with those centers where there is modern sophisticated technology. You can see to it that the products and services available are brought into this region.

I would just like to conclude with one brief word of warning. I think there is a tendency for people like myself to come to a meeting like this and to speak in glowing terms about the new technology and the wonderful things that are going on. I feel justified because a great deal of progress has been made and there is lots to be excited about. But I think that it would be a mistake for you to imagine that it has all been done and that all you have to do is buy some equipment and start pressing buttons. Believe me, there is still a great deal of homework to be done by everybody at all levels.

Mr. Humphry: Thank you very much, Bob, for bringing into clear perspective so many of the factors that relate to the subject at hand. As a matter of fact, the New York State Library has been looking for a good public relations officer and I think you would fill the bill, just like your colleagues on the panel I would like to compliment the members of the panel for bringing a wide and diverse background into a clear picture in describing the subject with which we have been concerned. I think it has brought us to a greater recognition of all of the factors that go into this whole business of assemblying and disseminating information effectively, and it's only by working together and bringing together all kinds of experts and all kinds of people involved in a variety of endeavors that we're going to make this the success that we know it will be. Thank you very much for your patience and for being willing to participate. We've never had the heat turned on like this before but we're very pleased that so many of you did come and did stay. I know that it has been worth while. Thank you very much.

Dr. Yelton: I have only to express my thanks as presiding officer of this session and to second our panel moderator's adjournment of this session.

Mrs. Elena Horton

Neal L. Moylan

DINNER, JUNE 12

Presiding: Mrs. Elena Horton, Executive Director
North Country Reference and Research Resources Council

Mrs. Horton: The Conference Committee, on behalf of the Council, in recognition of the support, encouragement, and assistance which she has so generously given us, wishes to present to Jean Connor this gift which has been especially designed for her.

Miss Connor: It's lovely and it is a surprise. The card says, "We wanted you to be the first to have a symbol of our Council made especially for you. Love from the Council." It's the wonderful sun symbol which is on all your publications which I have been admiring very much. I love pins and I shall wear it and I shall think of you. Thank you very much.

Mrs. Horton: We couldn't think of anything more appropriate. Most of the Council members haven't seen it. You might like to look at it. It was actually ordered last week and cast and arrived by special delivery this morning.

I would like to tell a little story, and I just want to say any resemblence to anyone living or dead is coincidental. My newest assistant and her husband are great wine makers and told me about this man who wanted to make a very fine wine so he got all the ingredients and he put it up and he did what you have to do and then he bottled it and put it in his basement; but naturally good wine has to be aged for quite a long time so he left it down there for ten years. Finally he thought the time had come so he went in and opened the inner door in the basement and looked at the bottles lying there on the shelves and was going to have the first taste. All of a sudden he saw a lot of shaving on the floor. Then he went over and picked up one bottle. No wine but a nice neat hole through the center of it. Every subsequent bottle was in the same condition. Finally he looked on the floor, and here were all these termites with their feet up in the air and smiles on their faces.

It really is a great privilege to have the Commissioner of Commerce of New York State with us tonight. Mr. Moylan said not to go through all his biography. He said his PR people get over-enthusiastic but there are some things that perhaps we ought to bring in. He was appointed to his present post by Governor Rockefeller in November, 1968. He had at that time been with the State for twenty years. He joined the Department of Commerce in 1947. He also served in the Air Force and made 23 trips over Japan. He tells me he did editing with the Department when he first went in, and I asked Mr. Savage, our local official for the

Department of Commerce, who is here with him tonight, "What can you tell me that isn't official?" and he mentioned the fact that the first day on the job they were going out to something or other and they all started to sing **Far Above Cayuga's Waters** and all of a sudden someone said "But he can't sing, he's from Syracuse." Since you can read his biography, I won't belabor it, and I'll just say that we're delighted to have Mr. Neal L. Moylan with us tonight.

Neal L. Moylan, Commissioner, New York State Department of Commerce

No one here this evening has to be reminded that this is an age of amazing technological achievements. As we prepare to land the first man on the moon, as our bathyspheres probe the secrets of the seas, and as new amazing medical breakthroughs are reported, all of us can justifiably be proud of our nation's scientific accomplishments which are having such a profound effect on our lives.

And from all indications, this is just the beginning because:

50 percent of all the world's scientific and technological discoveries have been made in the last 15 years.

Approximately 80 percent of all the scientists and engineers who ever lived are alive and working today.

Approximately 60 million pages of technical data covering every field are published yearly.

This means that we can look forward to an accelerated rate of research activities and continuing scientific progress.

A study conducted for the National Science Foundation reported that scientists tracing the origins of five major developments in technology found that the indispensable basic research was already 90 percent complete before anyone conceived of the development itself.

They also found that 70 percent of the key discoveries and other technical aspects necessary in the five major developments were evolved by research workers seeking knowledge in their fields without any specific product in mind.

According to the National Science Foundation, "the study shows the relevance of research to technology, and also demonstrates the need for a broad base of scientific knowledge to underpin technological progress."

I believe these conclusions by the National Science Foundation underscore the importance of such organizations as the 3R's Council here in the North Country and our new Division of Industrial Sciences and Technologies in the State Department of Commerce.

Both have similar objectives – strengthening research resources, improving acces to these resources and publicizing their availability.

As you know, the State Technical Services Program within our Division of Industrial Sciences and Technologies serves North Country business and industry through our host institution, Clarkson College of Technology, and through St. Lawrence University in Canton. Your organization, of course, serves an area encompassing seven counties.

With billions of dollars being expended on research activities throughout the nation, with our society becoming more complex, and with our business and industry more technically oriented, it is essential that the results of this vast research are put to practical use for the benefit of all. The best way to achieve this goal is to make certain that business and industry, especially small and medium sized firms, are informed about scientific data which can help them develop new products and new techniques which enrich all our lives.

We don't have to look much farther than Potsdam for an example of what I mean.

Through advice and assistance from the State Technical Services staff at St. Lawrence University, Putnam-Hawley Building Materials now quarries special construction stone and employs manpower normally laid off during winter months – in addition to hiring additional employees.

And, I understand, the four-day seminar on soils and concrete at Clarkson College of Technology attracted representatives of nearly every large construction company in the area, as well as from Central New York State firms and even from a neighboring state.

That's what this business of dissemination of technical data is all about – getting information into

the hands of the people who can use it in their operations. Our Department hopes, of course, that the data will enable the firms to improve or enlarge their operations and create new job opportunities.

This is our Commerce Department's primary function – to stimulate economic growth and create job opportunities. We issue a wide variety of publications containing economic data for use by the business and industrial community. These include Business Fact Books – such as the one for the Northern Area – Business Trends in New York State and the Directory of Industrial Research Laboratories in New York State. The point I want to make is that the data they contain are intended to make it easier for business and industry to secure information which can be used effectively and profitably.

We in the State Commerce Department are vitally interested in disseminating technical data and information because over 40 percent of all industrial employment in our State is in firms which require the services of scientists, engineers and technicians to maintain their operations. Manufacturing employment growth in the State is largely concentrated in those enterprises which lean heavily on research and development.

Science-oriented industry is the growth industry of tomorrow. Historically, a region's economic development has been linked closely to such unalterable factors as natural resources, sources of raw material and proximity to major markets. Although these factors are still important to many companies, the science-oriented firms also base their plant location decisions on such resources as availability and stature of educational institutions, research organizations and cultural and recreational facilities.

New York is well equipped to meet the needs of these growth firms. Its excellent climate for industrial research is reflected in more than 1,400 industrial research laboratories throughout our State – more than twice the number located here in 1954.

There are 207 colleges and universities in New York which grant more graduate and undergratudate degrees in science and engineering than any other state. Over 61,000 scientists, engineers and technicians are currently engaged in research activities, in addition to thousands of additional supporting personnel.

There are A-1 attractions for science-oriented companies and for firms which depend on research for their successful operation. These companies hire highly trained, highly educated employees – and pay them well.

What factors do these science-oriented industries consider before moving into a community?

Since many of their employees are college graduates, they give prime consideration to the quality of local educational facilities – both for their employees' children and for the employees themselves, many of whom are working for masters and doctorate degrees.

They look for first-rate recreational facilities since their employees enjoy relaxing on weekends and can afford the price of skiing, golfing, sailing and swimming.

Cultural pursuits mean a great deal to these people, as do medical services, good housing and responsible government. Included in this category are such things as zoning, planning and reasonable taxes and I should point out that these people aren't so much interested in low taxes, as in value received for taxes.

And, whether a firm is science-oriented or not, it lays great stress on the attitude of the local community toward industry. It wants to make certain the community welcomes industry and its employees, helps them find adequate housing and invites them to join local social and civic organization. In short, it wants to make certain the welcome mat is out!

How does the North Country stack up in its efforts to attract new industry? I don't think you will find friendlier, more cooperative people anywhere else in the country.

You have outstanding educational facilities in the region and your expanding community college system is a welcome asset to these facilities.

You have some of the State's outstanding leisure-time attractions which draw increasing numbers of tourists and vacationists to your region.

Your expanding medical services, cultural opportunities, housing facilities and plans for urban renewal and development are all indications of a progressive and forward-looking attitude.

Your initiative in forming such a fine organization as the North Country Reference and Research Resources Council to provide needed services on a regional basis is an outstanding example of cooperation and effective communication.

As I mentioned earlier, these are factors which appeal to research-oriented industry.

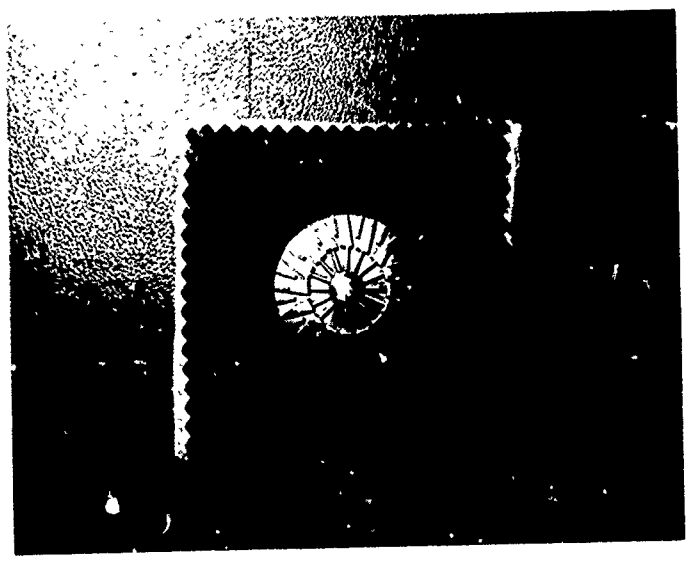
These are the factors which are eventually going to lead to growth and expansion – and prosperity for all – throughout Northern New York.

Mrs. Horton: We certainly thank you, Commissioner Moylan, for joining us tonight. I am sure the Commissioner will take time shortly after dinner to talk to many of you individually, perhaps answer questions, although I understand he has designs on a swimming pool up in Massena, so wouldn't suggest that you keep him too long. Now Jason is supposed to give me a high sign. He's going to conduct a tour through State University Campus.

Mr. Carnright: I know that several of you have already indicated a desire to go to State University Campus at Potsdam to tour their Learning Resources Center. There will also be a tour through the art gallery. Since our listing is not complete, we would like a show of hands at this time of the number that are going to go over with us, and we will provide transportation. Will you just raise your hands to let me know how many plan on going? O.K., that's fine. This will give me an idea. Will you please meet down where we had our drinks before dinner? We expect to move out in about ten minutes.

The Learning Resources Center at Potsdam produces slides, television tapes, and other audio-visuals. I think it will prove interesting. At the art gallery I understand there is a fine exhibition of prints. You'll probably have an opportunity to tour both buildings. Also, anyone who needs transportation between now and the end of the conference, please see me.

Mrs. Horton: We gather that Mr. Carnright is in charge of transportation along with Charles Penrose. Thank you, Jason. Jean has said that any of you that haven't seen the pin may come up and see it here at the table. If any of the rest of us can be of any help to you in orientation, please let us know.



Harold B. King

Dr. Roger C. Greer

SECOND SESSION, FRIDAY, JUNE 13, 1969

Presiding: Dr. Roger C. Greer, Dean
School of Library Science, Syracuse University

Dr. Greer: Dr. Strauss was scheduled to speak at the session yesterday afternoon. Because of the time limitations, and fact that Mr. Lovelace could not come, Dr. Strauss will speak this morning. He will be our first speaker.

Following the formal presentations, we will break for coffee. At the coffee break, you will be given group numbers. At eleven o'clock I would like all of you to reassemble here for some charges as to what you should do in your group meetings and then we will break for these group discussions.

Before I introduce the speaker, I would like to say I have been gone from the North Country only two and one-half years but how quickly you lose faith! I brought a winter suit along! Elena said something about changing the image of the North Country. That was her excuse for yesterday's 90° weather but it seems to me that two days in a row gives you a reputation.

Since I have the floor and this is the first chance I have had to address this North Country Council in two and one-half years, there are a couple of things I would like to mention. Coming up here, I was reminded of the very first meeting of this organization in Ogdensburg on a winter day in 1964. It was a real North Country winter day with a blizzard – cold, snow, slippery roads, but the dedicated people appeared at that meeting. Mason Tolman and Allen Sevigny came up form Albany, barely got back. Andy Peters, Mary Parker and I came over from Potsdam and Canton. Marion Brickey, bless her soul, was hostess that day. Bob Carter came up from Watertown. I can't remember who came with him from his staff, but these people came together at that time because they were interested in the objectives of the 3R's as defined by the Lawrence Report supported by the State and dedicated to the idea that the North Country has a future of its own, and we came together to talk about what we were going to do about it. Following that meeting, this organization was born and immediately grew and thrived. The thing that characterized this Council, I think perhaps more clearly than or more specifically than any other Council in this State, is that we had wholesale participation by the librarians all over the North Country. Month after month, year after year, these people came, despite the weather and the distance to these monthly meetings. This is still happening, and it is the strength of this particular group. Surely a great deal of credit for the organization should go to the support given by Mason Tolman, Jean Connor, Sam Prentiss, Allen Sevigny, Basil Mitchell and E.J. Josey, but it is still that belief

in the North Country that everyone has had, that dedication to the principles of the 3R's that has kept this group strong, and I think is going to make this one of the best Councils in the State or let's say continue to be the best Council in the State. I can be partial.

I also want to congratulate this Council. This is the first time I have had the opportunity to speak to you since you have taken this giant step. The appointment of Elena Horton was really a giant step forward. She has done an excellent job and will do great things for you. I notice that in one year she has put the Council on the map and next to Jean Connor's heart. I also want to say one more nice thing about someone who at that very first meeting was elected Secretary and who has for the last five years continued as Secretary or President, who has been the backbone of this Council, Mary Parker. I think you ought to give her a hand.

I will get on to the introduction of the speakers. Dr. Strauss hasn't really given us much information about himself but I do think he will have something to say that will be worth listening to. He graduated from Columbia College in 1934 before it was known as a battleground. I don't know if they took possession of the Low Library at that time other than to study or do research. He was awarded his medical degree in 1937 from the Columbia University College of Physicians and Surgeons, and he practiced internal medicine on Long Island for two years from 1940 to 1942. He has held the position of medical director with several pharmaceutical companies for 24 years and his responsibilities included Director of Clinical Investigations of New Drugs and the development of programs of continuing education for physicians and for other health personnel. With these responsibilities, he has an interest in libraries and health information facilities. Since 1964, he has been associated with the Department of Postgraduate Medicine at Albany Medical College and is presently Associate Professor of Postgraduate Medicine. Dr. Strauss.

MEDICAL LIBRARIES IN NORTHEASTERN NEW YORK

William T. Strauss, M.D., Associate Professor of Postgraduate Medicine, Albany Regional Medical Program

The Albany Regional Medical Program, funded since early 1966 through the Heart Disease, Cancer, Stroke legislation as enacted by the National Congress (P.L. 89-239), provided an opportunity to study the facilities and services available in medical libraries in Northeastern New York State, Southern Vermont, and Western Massachusetts.

The incentive to study this medical library system stemmed from the fact that continuing education of the health professions has been a major objective of the Regional Medical Programs. Since the Albany Medical College of Union University has been actively engaged in the field of continuing education for many decades, the concept of regionalization, especially for continuing education, was not new to it. Thus it was not surprising that the College, with its Department of Postgraduate Medicine as the administrative agent, received one of the first planning grants for Regional Medical Programs in 1966, and about a year later was awarded the first operational grant in the nation.

In order to give proper emphasis to the matter of medical libraries, the Albany Regional Medical Program established a Consulting Group for Library Service. Members of this Group include practicing professional medical librarians and representation from the New York State Education Department.

One of the Group's first projects was the determination of the extent to which medical libraries in the Albany Region were providing necessary services to the health professions. Of the 86 hospitals in the Region, some 60 are "general" in type and most of these can be considered community hospitals. The great majority have a bed capacity of 100 or less, although a few are in the 250-300 bed category. Other than the Albany Medical Center Hospital (800+ beds) and the affiliated Veterans' Administration Hospital in Albany (1000 beds), none can be considered as a true medical center.

Omitting reference to the Albany Medical Center for the moment, it was learned that the library facilities of more than 75 percent of the other hospitals are scarcely adequate. In fact, many can be considered wholly inadequate. Since a physician (and other members of the health team) has only two convenient sources of library materials (his own personal library and that of the community hospital(s) with which he is associated) it is easy to see that a large percentage of the health professionals in the Albany Region have no easy access at present to a modern, well-stocked and well-equipted medical library.

The survey conducted by the Albany Regional Medical Program showed that 94 percent of the responding hospital indicated they had a "medical library". Further study revealed the fact that in many instances

the "medical library" consisted of a few shelves in the doctor's lounge or small conference room. A spot survey of some of these showed many of the volumes to be better candidates for historical tomes rather than for modern reference works. The number of serials in these "libraries" was found to be distressingly small; in many instances, no serials whatsoever were present – or at best a few publications represented by scattered issues donated by a member of the hospital's medical staff.

The situation with respect to librarians is equally distressing. Only 12 percent of the hospital libraries were staffed by individuals with any type of library training; some of the other "librarians" had gone no further than high school in their education. In many instances the 'librarian" was an individual from the medical records department who spent a few hours monthly in the medical library. And in a substantial number of cases the "librarian" was the hospital administrator's secretary who held the key to the bookcase.

Only a small number of hospitals can boast of a library budget. In the majority of cases books are purchased at the request of a physician particularly interested in a given topic – and only then if he can succeed in persuading the administrator to approve of the purchase. Even the better equipped libraries for the most part spend but one or two hundred dollars annually for new acquisitions. Actually, with the exception of some 6 or 7 hospitals, no hospital in the Albany Region can be said to have adequate library facilities and services.

Part of the survey consisted of asking each hospital if it owned four basic textbooks (one each on medicine, surgery, pediatrics, and pathology) in their latest editions. Only 25 percent of the institutions fulfilled this meager requirement. As a matter of fact, the overall average of all hospitals in the Albany Region, with those exceptions noted above, was learned to be about 125 volumes each – and by far the largest percentage were virtually historical in nature. In some cases acquisition was from a physician's widow who was disposing of her former husband's estate.

This survey, incomplete as it was, provided sufficient evidence that the medical library facilities and services in the Albany Region are wholly inadequate. Presently the Consulting Group for Library Services is preparing recommendations for remedying the situation. Obviously this cannot be accomplished rapidly, but it is expected that an early start will be made. Certainly a most important facet will be the motivation of the health professions to use the available services, and the members of the administrative staff of the Albany Regional Medical Program realize that this may be the most difficult problem to solve.

Dr. Greer: Thank you very much, Dr. Strauss. It occurred to me that we have had a number of speakers and we will have Mr. King speaking. Would it be possible for each of these speakers to circulate among the discussion groups within the next hour so that individuals could direct their questions to them at that time? Would that interrupt the plan? All right, then hold your questions until we meet in individual groups.

Mr. King, substituting for Joe Becker is a research associate at the Interuniversity Communications Council of EDUCOM, and Project Director of the National Agricultural Sciences Information Network Project. For the past three years, Mr. King has been involved in the design and development of national information systems. He worked on the design for National Chemical Information System supported by the National Science Foundation. He is currently developing a plan for the National Agricultural Sciences Information Network for the National Agricultural Library and the land grant universities. Prior to this, Mr. King was involved in the design and development of a number of automated command and control systems for the Strategic Air Command in the United States Navy. He is a member of the Association of Computer Machinery and the American Society for Information Science. He comes from California where they have this kind of heat all the time, and Washington, so he really should be grateful for the cool weather. He has co-authored a paper on the proposed National Chemical Information System published in the 1967 proceedings of the American Documentation Institute. It is a pleasure, Mr. King.

Harold B. King, Vice-President, EDUCOM National Networks

Among the gentlemen speaking yesterday, there was one from IBM, one from University Microfilms and one from Kodak and it was not necessary for them to define their organizations. I believe I should start off with a short commercial break and identify what EDUCOM is. The interuniversity Communications Council was organized in October, 1946 to provide a means of collaboration between colleges and universities in

applying the communications sciences to educational processing. In addition, EDUCOM was established to provide the academic community with an authoritative voice in its relations with industries, governmental agencies, and those agencies which are also concerned with the developing communications sciences. EDUCOM was formed as a non-profit corporation at a meeting of representatives of eight major universities held in Denver, Colorado. The charter members were the University of California, Duke University, the University of Illinois, the University of Michigan, the State University of New York, the University of Pittsburgh, the University of Virginia, and the University of Rochester. Now in 1969, EDUCOM has 93 member institutions. We count the institutions as being each University that belongs and this turns out to be about 200 campuses located in all of the United States and a few universities in Canada. We have attempted to incorporate a few universities from Mexico but there seems to be a language barrier and no one in the office seems to speak any of the South American tongues. The initial financial support for EDUCOM came from a five-year grant by the Kellogg Foundation, the same people who turn out corn flakes and other cereal products. The five-year grant ran out this year and we have been given another five-year grant.

So essentially, EDUCOM is a consortium of institutions of higher education who have joined together to develop the means for sharing their physical and intellectual resources. Currently among its many other activities, EDUCOM is working on three research projects; one for the National Library of Medicine to assist in the development of a National Bio-Medical Information Network, a second for the National Agricultural Sciences Information Network and a third project for the Office of Education which is being funded by the National Science Foundation to assist in the development of an education information network.

This network will include the sharing of computer-based computational resources. It will allow universities that currently have computational abilities to share their resources, both program materials and hardware with other universities. I will go into a little bit more detail about at least two of these projects later on in my network discussion.

"National Networks". I believe my speech could just as easily have been titled "National Systems". You will note that I use the terms network and system interchangeably throughout my discussion. They seem to have been equally applied to similar concepts by previous designers and planners. The term **network** has been gaining in prominence during recent months. I believe the reason is that **network** implies a sharing or distribution of resources and this concept is looked upon with favor by funding agencies in Washington.

Most of the networks being developed today are identified as being either discipline-oriented or mission-oriented. The term discipline is generally related to those scientists who are working in the pure sciences (i.e., Chemistry, Physics and Math), and mission is related to activity in the applied sciences (i.e., agriculture, medicine, atomic energy).

Another indicator of network type is the agency or professional society which is supporting, planning and development costs. As an example the National Science Foundation has allocated planning money for a number of the discipline networks whereas the Department of Agriculture, the National Institutes of Health and the Atomic Energy Commission are supporting mission oriented networks.

Let us now look at a few of these networks, see what are their goals, who are their sponsors, who are their users and what is their current state of development.

DISCIPLINE-ORIENTED NETWORKS

National Chemical Information System

About three years ago a system team was funded by the National Science Foundation to look at the problems of the chemists in the United States and determine how one could go about solving at least some of their information problems. A system design was completed and submitted to the National Science Foundation on April 10, 1967. It was titled the National Chemical Information System (NCIS). The concept was based on the assumption that the information needs of chemical information users were currently being filled, albeit less than satisfactorily, by services which exist today; and further, that improvements and greater integration of these services would result in greater overall efficiency of all services and more complete fulfillment of information needs.

In addition, in response to a suggestion by the National Science Foundation, the system was designed to facilitate control and operation by the American Chemical Society (ACS).

This system was designed so that information would initially enter at the original literature levels

(journals) and would then be processed and forwarded to subsequent components. This information would be available to the user, as required, in its original form, as abstracts, as titles or citations or as data elements from one of the data banks. Some of the components would be owned and administratively controlled by the ACS. Other components would be independent, private or federal organizations connected to the NCIS Control Office through a liaison arrangement.

The system would also include provisions for queries from system users to centers with search and retrieval capability. Requests could be made for data, data related information, bibliographies, or documents in some form.

The backbone to this system would be the services available from Chemical Abstracts Service (CAS).

Those of you who are not involved in chemistry probably do not realize that Chemical Abstracts Service is one of the largest abstracting services in the world. In the preparation of **Chemical Abstracts** nearly 12,000 journals and patents issued by 25 countries are regularly monitored. The abstracts are assigned to one of 80 subject classifications. Approximately 240,000 abstracts were published in 1968. Some of CAS' services are currently available on magnetic tape for a fee. Those that might be mentioned are: Basic Journal Abstracts, which is the entire contents of **Chemical Abstracts**; Chemical Abstracts Condensates, which includes titles, authors, journal and patent references; and Chemical Abstracts' key work index entries for each abstract published by **Chemical Abstracts**. They also have two special abstracting services. One, called Chemical and Biological Activity (CBAC), covers articles which are concerned with the interaction of organic compounds with biological systems. The other is called Polymer Science and Technology (POST). It is comprised of abstracts which are specific to that field and are broken out as a separate package. CAS also offers custom search services on CAS computers for these tapes.

The design of the National Chemical Information System called for a very close coordination between the primary publishers and the secondary publishers. As an example of the type of effort which would be required, the American Chemical Society is producing abstracts for its journals and then forwarding the abstracts to CAS in a manner which will eventually allow the abstracts to appear prior to or at the time of publication of the primary article. The long-range plan for chemistry is that all of the publishers of chemical literature, both primary and secondary, will work as closely as this. As part of its production process, the ACS is transforming its journal material into a machine-readable form. As noted, this is also being done at CAS. The National Chemical Information System can be considered to be in a more advanced stage of development than the other discipline-oriented systems.

National Physics Information System

The American Institute of Physics (AIP) with support from the NSF has taken on the responsibility of a system for physics. This program pivots on the design of a new classification system for physics which is to be used, in conjunction with free-language index terms, for the intellectural organization of the physics literature. Classifying, indexing and abstracting are to be done by the authors under the scrutiny of referees and editors.

Now, this is relatively interesting because most abstracting houses would rather use professional abstractors, whereas, the American Institute of Physics has decided to use the authors to abstract their own material and to come up with key word terms for indexing. Whether or not this will be a valuable service, I do not know. Most of you who work in this area realize that authors turn out to be some of the worst abstractors in the world. Their abstracts tend to tell you what they wanted to say in their article rather than what they actually did say.

The AIP journals – a significant portion of the world's physics journal literature – are to be produced by computer-aided photocomposition. The requisite computer tape will furnish, as a by-product, the input to a computer store of information about the AIP-generated primary physics literature. Another by-product of the same tape will be input to **Physics Abstracts**; and in exchange, computer-readable information on non-AIP journals will be obtained from **Physics Abstracts**. The computer store will contain bibliographic information, classification, index terms, citations and possibly abstracts. From this store, a variety of services can be derived, including published indexes and bibliographies, copies of computer tapes, remote on-line access to the computer store, selective dissemination of information, and special searches on demand.

The National Mathematics Information System

During the past year, the American Mathematical Society has become deeply involved in the study of information exchange in mathematics and experimentation with mathematical information systems. The impetus behind this increased interest in communication systems was the final report of the Society's Committee on Information Exchange and Publication in Mathematics, which recognized the vital need for improved modes of communication in mathematics. The report recommended that a permanent **Committee to Monitor Problems in Communication** be appointed. The role of this committee is to devise experimental projects which can meet the general needs of the mathematical community for better communication in various areas, and to evaluate the results of these projects. This committee has already identified some projects. One of them is a mathematical off-print service which will offer to the individual mathematician a reproduction of an article of special interest to him. This is something like the Institute of Science Information (ISI), Original Automatic Tear Service, which offers copies of articles torn from the original document. The second project identified by the committee is a current mathematical journal contents publication which is something like ISI's **Current Contents** which offers tables of contents from various journals. A third project is its offering of assistance to the Library of Congress for subject classification in mathematics. They are also going to try out author produced documentation units. In addition to that the Society is experimenting with a number of other information projects; all of them funded by the National Science Foundation. Some of these are: the production of mechanized indices for the journal, **Mathematics of Computation**; computerized photocomposition of bibliographic information and text in mathematics; a comulative volume of reviews in algebraic and differential topology; and research on machine aids to an editor of scientific translations. Just recently the National Science Foundation gave the American Mathematical Society a small planning grant to come up with a system concept for a National Mathematics Information System.

The National Biological Information Network

The last of the disipline oriented networks that I want to cover this morning is the National Biological Information Network. The American Institute of Biological Sciences is comprised of about 47 societies. It would be great if it were possible to pull all of these societies together and develop one comprehensive biological information system. Current indications are that this may be difficult to do. As an example, the Entomological Society of America has submitted its own proposal to NSF and have already received money to develop a network of their own in entomology.

Basic to the National Biological Information Network is Biosciences Information Service or BIOSIS. They have already started to develop an automated system for the storage and retrieval of bibliographic information. I would like to see BIOSIS become analogous to Chemical Abstracts Service and to be directed by the American Institute of Biological Sciences as **Chemical Abstracts** is directed by the American Chemical Society. Currently, BIOSIS makes available to the bio-scientific community the contents of almost 7,000 individual journals and **Biological Abstracts** now includes more than 500 distinct categories of bio-scientific information. This year BIOSIS expects to publish 125,000 abstracts, a number which is too large for most working scientists to effectively digest. Therefore, it has turned to data and information processing with several basic indexes: an author index, a biosystematic index using taxonomic identification, and a BASIC index (Biological Abstracts Subjects in Context). Also, specialized journals of abstracts in one particular subject area are now beginning to be published by BA.

BIOSIS has also started a taped index service called **BA Previews**. This service, for subscribers equipped to make machine searches, is expected to precede the printed indexes and abstracts by approximately 4-5 weeks. So, as you see, each of these networks isn't really trying to by-pass the published information services as much as they are trying to reduce the interval between the original concept of an article by an author and the time it is finally read by the reader.

This has been a relatively brief review of some discipline-oriented networks which are currently being developed.

MISSION-ORIENTED NETWORKS

National Engineering Information System

I would now like to briefly review some mission-oriented networks. The first of these is the National Engineering Information System.

In November 1966, a Tripartite Committee which was comprised of the United Engineering Trustees, **Engineering Index** and the Engineers Joint Council, made recommendations to its parent bodies which outlined the steps that should be taken to establish a United Engineering Information System. The Committee has continued to develop the concept of a UEIS by drafting papers describing a proposed form and structure of an information corporation and seeking advice widely from members of engineering societies and from industry. Also, the Committee has secured a grant from the National Science Foundation to retain Battelle Memorial Institute to conduct a ten-month study to develop an engineering plan for a UEIS. I believe the results of that study are supposed to be available very shortly. Completion was projected for the Spring of 1969.

The Battelle study team will produce system design specifications and a plan for system design, implementation and operation. I won't go into the details but the plan will cover most of the things that are usually covered in a plan of this type. In addition to the above activity, a National Engineering Information Conference, which is being sponsored by the President's Office of Science and Technology in cooperation with the Tripartite Committee, will be held on the 24th and 25th of June 1969 in Washington, D.C. Basically, this conference is supposed to draw together specialists in the field of engineering information and interested users to identify what a national network for engineering might look like.

National Biomedical Information Network

The National Library of Medicine is planning a National Biomedical Information Network to meet the information needs of the medical scientist. As a backbone to this network NLM will use a new version of its computer-based medical literature analysis and retrieval systems (MEDLARS).

MEDLARS, in operation since 1964, has been providing health professionals access to the world's biomedical journal literature. The system also produces **Index Medicus** and many individualized bibliographies.

The new system, MEDLARS II, will provide for an integrated, automated system for the performance of all major NLM functions. Automated support and control will be supplied from the time material is ordered from a publisher, through cataloging and indexing, to its appearance in a NLM publication or in response to a search request from an individual practitioner, scientist, or educator.

Currently MEDLARS is covering 175,000 articles from 2,300 biomedical periodicals. About 45 percent of these articles are in languages other than English. As of July 1967, the MEDLARS store consisted of about 537,000 citations on magnetic tape. The list of indexed journals appears annually in **Index Medicus**. Citations from items published before mid-1963 are not listed in the MEDLARS file.

Medical Subject Headings (MeSH) is NLM's subject heading authority list and controlled vocabulary. MeSH terms are used to index materials according to content. An average of eight headings is assigned to each article.

Requests for usage may be made by scientific investigators in public and private institutions and by members of health professions. There are no charges for producing demand bibliographies, but there is a careful screening process to determine feasibility and usefulness of an automated search.

National Agricultural Science Information Network

The last topic to be covered with respect to networks is the National Agricultural Sciences Information Network. This is a network being designed by EDUCOM for the National Agricultural Library. We like to think of this as a National Library Network, not necessarily restricted to the agricultural sciences. The reason for this is that the network is being designed to include all of the land-grant institutions. For those of you who are not familiar with the land-grant system, there is at least one land-grant institution which is a major state university in each of the 50 states. There are seventeen additional ones in the South and there is one in Puerto Rico. Massachusetts Institute of Technology is also a land-grant so that gives Massachusetts two land-grant universities. Our intention is to use the land-grants as primary nodes in the national network. We will thus have at least one library node in each state. We would like to connect the institutions together through the medium of a leased-line teletype network. The cost of setting up a leased-line network is rather high but we feel that if the Federal Government does not pay for the line charges then communications will be no better than they are now. We expect the user to pay for the terminals. The Agricultural Sciences Information Network will consist of two sets of nodes. The libraries will be one set of nodes and information analysis centers will comprise the other set of nodes. These will both be

supported by what we call the telecommunication component. The National Agricultural Library will be a major resource node and will also hold management responsibilities.

The National Agricultural Library is currently offering a number of automated services. Through their Pesticides Information Center they produce the **Pesticides Documentation Bulletin** which is a categorized, bibliographic citation file, accompanied by subject, author, organization and biographical indices. This is issued bi-weekly. The material covered is the literature on pests, their control and their impact on the economy and man's total environment. All the elements of the citations are maintained in a mechanized file and are searchable by computer.

In addition to this automated search the following records are available on magnetic tape from the National Agricultural Library:

1. **The Agricultural/Biological Vocabulary**
2. **Bibliography of Agriculture**: Subjects – January 1966 to date; Authors – 1964 to date; and Corporate Authors – March 1968 to date.
3. **International Tree Disease Register** (INTREDIS): references to the literature from 1930 to 1970, searchable by subject, country, host, plant, or causal organism.
4. **Herbicides Data File:** reports on field tests conducted by the Crops Protection Research Branch, Agricultural Research Service, 1952 to date.

Another system which is being developed by the Department of Agriculture is the Current Research Information System (CRIS). This is primarily a current awareness system for researchers in the area of agriculture. Researchers doing work under agricultural grants are required to submit progress reports every six months. These are currently being converted into machine searchable files.

How Will the Networks Affect the Local Library?

How Will the Networks Affect the Local Library?

Currently the National Science Foundation is subsidizing campus based information centers. These centers are the out-growth of the support that NSF has given to a number of professional societies for developing machine readable information products, such as, Chemical Abstracts, Biological Abstracts, and Physics Abstracts. What NSF would like is to develop an interface on campus which would allow a researcher to go to a specific center, ask a question, and have the material on any one of these files searched. The University of Pittsburgh is currently experimenting with a center in chemistry and Stanford has one in Physics. The Institute for Library Research at UCLA is doing research which should lead to the capability of searching across these various files. This will allow the researcher who is mission oriented to search across a number of files using a single search request.

What effect is this going to have on the local library? One thing is that you will be able to offer your customers better service. This assumes that these systems will get off the ground and already start to work and I think right now a lot of that is debatable. You will also be able to offer in-depth reference services to your users through an interface with the national networks. Many services you can't spend time, money and effort on now will be available through a network. If you have access to a computer terminal you will be able to type in a request and it will go out over the network. The information will be located, extracted and sent back to you. I won't describe in detail how that will work because I am not quite sure myself. Another thing which will be available will be an in-depth data base for specialized bibliographies. Currently when a user comes in and asks for a specialized bibliography he is usually refused because it is almost impossible to produce with the current manpower and money available to you. Hopefully, once the networks are set up, you will be able to submit a request and a machine will produce the bibliography for you. As long as the data is available, this is a simple task for a machine to handle.

Finally, as part of your own input into the national network, you will probably be called upon to prepare machine-readable inputs for the National Serials Data Program. When this system goes into operation, a request for a bibliography will get you not only a list of pertinent materials but also the closest location of the document containing the article.

Problems on Campus

There are a number of problems on campus that are crying for resolution. I have noted in my travels

around university campuses a growing competition between the Library Sciences and the Computer Sciences for a major role in something that is identified as Information Sciences. I think most of you who attend professional meetings in the library field have heard debates about the definition of information sciences. How much of it is computer science and how much of it is library science? I think a basic point behind all of this is who is going to control the campus based information center. Will the computer center control it because it now has the computing power; or will the library control it because it has the intellectual power required to reduce the information that is needed as input to the computer? A few of the universities are solving this problem by setting up Departments of Information Science. They are trying to meld both library and computer sciences together to arrive at a cohesive working group.

Another problem that I have noticed, and I think this is probably a bigger problem than anything else that we have been able to identify today, is a need for computer people to understand the librarians' problems and vice-versa.

Librarians are not learning enough about systems design techniques. When they go out and hire a hardware firm to bring in hardware or a software firm to design software they are in no position to analyze the firm's capabilities. You cannot make a decision based on what the firm has done in the past. Most information system houses today first get a contract and then go out and hire people to do the job. If the firm performed well on a previous project, the people who were assigned to that project are probably now working for one of the firm's competitors. What you should try to do is identify the person or persons who actually did the work and hire the company where they are currently employed with the stipulation that they be assigned to the project. Remember, you can't buy brand products in this field.

Future Prospects

What is the Federal Government Doing?

The next topic I would like to cover is titled "Future Prospects". The first item under this topic is, "What is the Federal Government doing?"

As you probably are all aware, the Federal Government has been very active during the last few years in attempting to put its information house in order. Recently, the Congress passed a bill entitled, "Higher Education Act of 1968". This act includes a separate section on networks entitled, "Title IX – Networks for Knowledge". This section has provisions designed to encourage joint programs among institutions of higher learning for the cooperative exploration of the new computer and communications technologies. Additionally, the National Library of Medicine is planning to subsidize systems in medicine and the Department of Agriculture in agriculture. A more recent event is a bill to establish a National Commission on Libraries in Information Science; this was reported by the House Committee on Education and Labor, May 14, 1969. The bill, as reported by the Committee, provides for the establishment of the commission as an independent agency within the executive branch. The Department of Health, Education and Welfare would provide the commission with the necessary administrative services.

There are a whole list of things that the commission is charged to do but basically they are trying to find out what condition libraries and information sciences are in today and how they can go about solving some of these problems. This is, as you probably realize, an off-shoot of the National Libraries Task Force which submitted a report to the President not too long ago.

What Should the Local User Do? (Recommendations)

Last but not least are the recommendations. What should the local user do? I think the local user should become cognizant of what is happening on the national scene. If you do not you cannot make known your own feelings. Since you are going to be the ultimate user it is very necessary for the people who are designing the systems to understand what you need. As you probably know, there were a number of user studies that were conducted over the last four or five years. The results were such that the people who were doing the investigation concluded that the user did not know what he wanted. Since the systems people could not determine what the user wanted, they went ahead and designed systems to see if they could get the user to use them. Naturally, this is a poor approach. The problem is that it is very difficult to find out what the user needs. You cannot ask him because you are asking him to identify a need in an area which he does not understand. How do you go to a chemist and say, "What kind of capabilities based on advanced techniques of library science could we use on campus?" He probably does not know much about the library to start with

nor does he know much about library sciences. It is therefore important that each of you try to identify the needs of your own campus users and make these known to the designers of the national networks.

Next, you should make maximum use of Federal and State sponsored information services. The State Technical Services Program is a good example. There is not enough public relations work being done in these areas. When you ask users on campus about the State Technical Services Program, they do not know what it is, they do not know where to go to get information and they do not know how valuable something like this might be. NASA and their technical information units is another good example of a very good service that has very poor visibility. There was one center on a campus which I visited that distributed a leaflet publicizing its existence. I talked to a number of potential users who knew nothing about the center. Upon further investigation I found that although they had read the leaflet they did not understand the purpose of the center so they just never used it.

With respect to the campus itself, you should establish a committee to determine what a campus based information center on your campus should look like and who should have responsibility for running it. If you do not take steps soon to determine who is going to have the responsibility on your campus for handling information you may find the computer science people stepping in to fill the void. Many information files are currently available in a machine readable form. If you librarians do not understand how the computer center handles this information, it is going to be difficult for you to justify your having responsibility for a campus based information center if one is established on your campus. As an example, **Biological Abstracts** currently comes to you in hard copy form. Soon it may also be coming to you in machine readable form. Are you willing to give up to the computing center the responsibility for serving campus users of **Biological Abstracts**?

Next, I think that if your users have a special interest in any of the networks described earlier you should become involved in their development. You should identify those networks that are valuable to your campus users and find out who is heading up the design effort. You should then give these designers your own input. Make them listen to you so they will at least design a network that will be useful to your own on-campus people.

Finally, and I guess this will be a very good closing point, you should start building a bridge between the library and the computing center. A number of universities have already done this. I think Washington State University is a very good example. They have a man on their library staff whose background is in the computer sciences. He is working very hard with the library to define library automation needs. Because of his background he is able to get the maximum use out of the computer center. Other library people at WSU are trying to learn as much as they can about the computing center. Once you start to build these bridges, the creation of a campus based information center is much easier to accomplish. If you do not build these bridges, the responsibility for the campus based information centers will be given to the computing center or a discipline-oriented department. The final outcome will be that the Department of Chemistry will have a terminal into the Chemical Information Network in its own department, physics will have its network terminal in its department and mathematics in its department. What will happen to the librarian of the future when a man comes in and says he would like information requiring a search of machine readable files in physics, chemistry, and mathematics. If the librarian does not know how these systems operate and does not have access to related terminals in the library he will not be able to serve the user as well as he has in the past.

REFERENCES

1. Alt, Franz L. and Arthur Herschman. **Plans For A National Physics Information Center**, New York, American Institute of Physics, March 1968, 42 pages.
2. Becker, Joseph, "Information Network Prospects in the United States", **Library Trends**, 17:306-317, January 1969.
3. Becker, Joseph and Wallace C. Olsen. "Information Networks", **Annual Review of Information Science and Technology**, Vol. 3, Chicago, Encyclopedia Britannica, 1968, pp. 289-327.
4. Committee on Scientific and Technical Information (COSATI). Panel No. 6. "Directory of Federally Supported Information Analysis Centers", Washington, D.C., Federal Council For Science and Technology, April 1968, 183 pages.

5. Conference on Communications Problems in the Mathematical Sciences December 5-7, 1967, "Final Report", 1968. 22 pages.
6. Cooper, Marianne. "Current Information Dissemination: Ideas and Practices", **Journal of Chemical Documentation** 8:207-218, November 1968, also issued by American Institute of Physics in December 1968, with an Appendix of 13 pages.
7. "Engineers To Plan Information and Data System Under NSF Grant", **Scientific Information Notes**, June-July 1968, pp 6-7.
8. Entomological Society of America. "A System-Designed Entomological Data Center – A Feasibility Study . . .," presented to the National Science Foundation, College Park, Maryland, December 1967, 18 pages.
9. King, Harold B. and Mathers, Boyd L. "A Proposed National Chemical Information System" in **Proceedings – American Documentation Institute**, 1967, pp 244-248.
10. Koch, H. William. "A National Information System for Physics", **Physics Today**, April 1968, pp. 41-49.
11. Mohrhardt, Foster E. and Blanche L. Oliveri, "A National Network of Biological Agricultural Libraries", **College and Research Libraries**, 28: 9-16, January 1967.
12. National Library of Medicine. Research and Development Associate Director. "The Bio-Medical Communications Network: Technical Development Plan", Washington, D.C . June 1968, various paging.
13. "News From Science Abstracting and Indexing Services", **The National Federation of Science Abstracting and Indexing Services**, April, 1969, 20 pages.

Dr. Greer: Thank you, Harold. One response, the new Ph.D. program in information transfer at Syracuse University Library School passed by our University Senate on May 21st is intended to educate the kind of people who will be able to cope with the requirements of the computer center and the library. The other component on our campus is its instructional communications material, non-book material. Other library schools in addition to Syracuse, for example, the University of Maryland, the University of Indiana and some others are doing something about this in their Ph.D. programs – trying to train people within library education to take on these new responsibilities.

If we break for coffee now and come back at ten minutes of eleven to the group meetings, we can pick up our schedule.

The group leader assignments are: Mr. Lawrence number one, Dr. Shulman, number two, Dr. Whitten, number three, Mr. Josey, number four, I will have number five, and Mr. Mitchell, number six. What I suggest we do during these group discussions is have the various speakers from the meetings yesterday and this morning circulate to each group, have each group ask these speakers whatever questions come to mind and then at the end, 11:30 A.M., have each group select at least one, possibly two questions to bring back to the group as a whole. Meanwhile, at this point, will you indicate how many of you will be here for lunch?

Coffee break.

Group Sessions.

GROUP QUESTIONS

Dr. Greer: We will now hear questions from groups one through six with the resource people providing the answers. The recorder for Group One is Pat Smith from NCRRRC Headquarters.

Mrs. Smith: To what extent does Syracuse Biomedical Center help other than medical schools, particularly in upper New York State? What is their clientele?

Mr. Michael Kerwan: Our clientele, at the moment, is directed entirely to medical schools, none of which are in upper New York State. I understand that Syracuse University Library School is at least considering obtaining a terminal in connection with our system for their research. That would be the first non-medical school client that we would have.

Mrs. Smith: What is the role of the State Library in coordinating all these new information services?

Mr. Josey: The State Library is a research library and a statewide planning and coordinating agency, which is dedicated to total statewide library development. Its first priority is to strengthening the

NYSILL program, in order to ensure access to research library materials by all research library users in New York State regardless of where they live. At the present time, the NYSILL program is interfacing with the SUNY Bio-Medical Network, and as other national information systems evolve and State funding increases, the State Library will coordinate the activities of New York State with these developing information systems.

Mrs. Smith: How can the Council best reach individuals and industry they are not now reaching?

Mrs. Horton: I am not an expert so can only cite what we have tried. Our public information program includes the brochures which you have in your folders. These were distributed to business and industry in the area. Radio spots were sent to all area stations. We have visited industries as well as non-profit organizations, and news releases as well as our **Newsletter** go out on a regular basis. In other words, we are trying to use all of the media of public relations. I would appreciate suggestions from others.

Dr. Greer: Are there any suggestions from anyone else?

Mr. Robert B. Smith: I would like to offer something. I think the way you ought to do this is to identify a group here that needs some help and jump in there and help them. You have the resources to do this and there is no better way to demonstrate the value of the regional system, than to have the regional system function to help somebody. Identify the group whatever the group is, do something for them and then build your public relations program upon the demonstrator's ability to perform. The way to react, the way to contact business and industry is to go out there and make the contact and do something for them. Not PR work, the PR work comes later, but do something specific for them.

Mr. Ronald L. Roberts: I have been talking with Roger Harvey from the J.P. Lewis Company in Beaver Falls. He came to this conference to learn how the 3R's Council could help him in pulp and paper research. This is a ready-made opportunity for us to take a test case and see what we can do in developing it.

Dr. Greer: As a start, we can tell him to use NYSILL and regional interlibrary loan.

Will the recorder from Group Two come up? Dr. Herman L. Shulman, the group leader.

Dr. Shulman: We have two related questions and maybe I should ask both of them at the same time. The first is how do small libraries move into machine use? The second is how can several small libraries join together to cooperate in machine use?

Mr. Stephen E. Furth: Small libraries can begin to use machines if it is economically justifiable and with the growth of libraries, small libraries soon become bigger libraries, so even though at the present time you may be small, there is a big advantage in beginning to look at the possibilities for help from machines. First of all, you have to learn something about these machines. You have to be able to communicate with the people who sell the machines, with the people who service the machines, and with the people on your campus or in your organization who write programs. You don't have to become computer programmers, but you have to be able to communicate with them. As I indicated yesterday, there is a communications gap. You have to try to teach these systems people that the library applications are not simple and teach them something about libraries so that you can begin this dialogue. Then you start putting some of the applications on data processing equipment. It doesn't have to be a computer. There are machines that work from punch card equipment that can do a very good job for the small library and by putting data on punch cards you obtain machine-readable records that you don't have to convert later on when you can step up to a faster, bigger machine. You can eliminate or reduce the conversion problem. The immediate solution today is for several libraries in the area to get together and agree on a plan and obtain help from a systems analyst. This will be a means of facilitating the communication between the librarians and computer people. Probably you will have nothing more than one of these terminals, either a typewriter terminal or a cathode ray tube television-like terminal in the library connected to a computer which may be on your campus, on some other campus, or maybe in another city. With the speed of the computer in communications, the response time will be the same whether the computer is next door or in Syracuse. Getting together of several libraries to share the computer facilities hopefully will lead to sharing of resources. This is the primary objective of the Five Associated University Libraries' project in Syracuse not only to share the computer facilities, but to share the large collections and thus slow down the exponential growth that research-oriented libraries are experiencing and reduce the cost that I quoted in my report for putting a book in circulation. Thank you.

Dr. Shulman: I guess I would like to ask one follow-up. Could a Council such as this one ask for and receive assistance from a hardware manufacturer in helping a group or a single library move toward some

goal? What could they expect?

Mr. Furth: Number one, speaking for my company, located in the proximity of the schools there are people whose job it is to service the computer installations. I admit that there is the same communications problem that you have with your own data processing people. They don't know very much about libraries, so you have to be indulgent and teach them something about libraries. I am trying to do this and we in IBM are trying to teach our people more about libraries.

Number two, there are many programs and systems in existence. A survey was made by the American Documentation Institute (now ASIS), and some of you may have this report. Probably a thousand libraries in the United States use data processing. Now among those are libraries that have one key punch in the library and that's counted as one, and then there are others like Harvard that have a computer in the library. It should not be necessary for all of you to start from scratch to design a system and to write programs, because lots of them are available. The one thing that IBM can help you do is to find other institutions that have done work with punch card equipment or with 1400 equipment or with 360 equipment for which systems designs or programs exist that you can use. I feel that there is help available. There is literature available, and there are manuals available. I travel around the country and very frequently, the first time that the IBM representative meets the Librarian at the university or college is when I come there. You probably don't know that this IBM representative visits that campus in some instances daily, in some instances weekly, and other instances several times a month. He is there. That's his job and you can call on him. Have no compunctions about asking him questions. You say, "Now this is what we want to do. Help us!" He will help you. Thank you.

Dr. Greer: The recorder for Group Three is their leader, Dr. Joseph Whitten, Maritime College.

Dr. Whitten: Our group found itself much in the same position as the man on the street. We couldn't think up any intelligent questions to ask beyond the expertise which has been given during the last two days, yesterday and today. However, we did talk with several of these experts and we want to make a statement emphasizing one particular think that Mr. Smith has already brought out and that is the matter of demonstration. We recognize that needs are not known on the street; so we in the 3R's program have a twofold responsibility. We must continue to learn and to be knowledgeable about information science – hardware and software. In the meantime, our other responsibility is to identify groups, as for example, the medical talk this morning, doctor and nurse groups, and bring material and information to them by demonstration. From that point on, the most active public relations program is possible. Again, we should not just indicate that something is available, but what is available, to answer questions before they are asked.

Dr. Greer: Group Four. Mrs. Mentley from St. Lawrence University, recorder.

Mrs. Mentley: We have two questions but they are much like other people's questions. We've decided that everybody has much the same questions. We're still going to ask them. We would like to ask Mr. Smith how can a small library take advantage of the developing information systems, not just the machinery but the systems?

Mr. Smith: I think a small library has to work through the regional system. Of course I am committed to this idea of the development of a regional system. I don't think that the library of the size we are talking about here, ought to try to go it alone. Rather it ought to work with Mrs. Horton and with the Regional Council Network to interface with whatever information center they have identified as one that can help them. I am trying to get back to the name of some organization out in Michigan that has a service in the field of wood technology. That certainly is a subject that is of great interest to the people up here. It would seem to me that through the regional center you should make contact with that place in Michigan. They have an abstracting service and an information service for cellulose technology and for wood and fiber products. This is the way a small library gets started by taking that step, going to that place through the regional center and seeing what kind of an arrangement can be made. It may mean that the region will subscribe to that abstracting service and distribute materials through the libraries. I am sure there are other services of this type that can be identified that relate to this area, and I would think that it is this kind of thing that the small library ought to do now and can do now to begin to bring the benefits of bedside services into the area through the regional center.

Mrs. Mentley: Our other question is aimed at Dr. Strauss. What specific things can the North Country Council do to strengthen medical library service?

Dr. Strauss: I think that the answer to that question is rather difficult. I am not going to concern myself with the technical aspects, the hardware aspects. Actually what I think that you can do really is not your basic responsibility, but since nobody else is doing it, perhaps you can be the good Samaritans. You can make the health professions aware of the fact that it is not difficult to get information on newer aspects of medicine – that it can be as close to that individual as his telephone. I think that you can do a great thing as crusaders in this respect to make the physicians, the nurses, and others in the health professions aware that they don't have to go to Syracuse, Albany, Washington, or where have you to get information they require. Also, to judiciously make the health professions aware of the fact that they do have informational needs. They don't realize that they have these needs, but make them aware that they have the needs and that these needs can be fulfilled as close as a telephone or perhaps at the nearest hospital where they have a medical library. You people are so far ahead in that you have answers to their needs, but they don't even realize they have the needs. Certainly this is not true in the medical centers where they are very active in this respect, but as soon as you get away from the medical center into the small community, the needs are there but are not recognized. Make them aware of the needs and then of how to fulfill the needs as easily as possible.

Dr. Greer: Thank you, Dr. Strauss. Marlene McLean, Clarkson College, recorder for Group Five.

Mrs. McLean: We have three related and rather specific questions for Mr. King. Who pays for the systems and networks? Second, since there is such an enormous overlap in information systems, is it being monitored in the design stage? Is there some attempt to prevent this expensive overlap? Third, is there any possibility of searching across the files of different information services, for example, **Nuclear Science Abstracts** and **Chemical Abstracts** to be stored and searched by procedures using the same approach mechanism?

Mr. King: I can answer the last two questions with a "No!" Well, first, who pays for the systems? Right now the Federal Government is subsidizing the development of most of these systems. As I indicated earlier, those which are discipline-oriented are being subsidized by the National Science Foundation. A lot of money is also coming from the discipline-oriented societies. For chemistry, the American Chemical Society puts money into the development of networks. **Chemical Abstracts** under the American Chemical Society also puts their own money into the development of these types of networks; so in general the money is coming from the top. The only problem with this is that somewhere along the line, someone is going to decide that now that the systems are built, the users are going to have to start paying for them; in other words, a per unit charge, and you may find youself paying $500 for a piece of information that you really didn't want. That's the major problem with having the Federal Government subsidize systems like this. $500.00 is a little bit out of reach, but by now there is a facsimile system between Baton Rouge and Atlanta, and they found out that it is costing them something like $3.00 per page for transmission of material between those two points. I don't know how many of your users are willing to pay $30.00 for a ten-page article. Right now, the Federal Government and the learned societies are paying most of the tab, but eventually the user is going to have to pay it.

Of the second two questions, one has to do with the overlap between designs and between coverage of abstracts in the indexing services. Yes, there is a lot of overlap. The abstracting services feel it is necessary because the material that they are generating is directed toward their specific user. A person who wants an abstract in physics may have a need for a different kind of an abstract than the person who needs an abstract in chemistry or an abstract in mathematics. As an example, in the **Chemical Abstracts** file, chemical molecular formulas have to appear in the abstract because that is one of the techniques they use for retrieving. A physicist may not be interested in the formulas, and an engineer may not be interested in anything except how one goes about building a system to turn out the chemical compounds that are being described. There is no clearinghouse in Washington to define those areas of coverage which should be the responsibility of any given network so there will be overlap.

As for the last question, right now most of the files are not cross-searchable. **Chemical Abstracts** has a specific format for its tapes. **Physics Abstracts** and **Biological Abstracts** have specific formats for their tapes. They each develop computer software to search their own tapes using different kinds of search strategy. What these terms mean to you as a user is that if you want to go into any one of these files, you have to go into it specifically. You can't go in with a question that includes information from all three

files and expect these files to be searched across. EDUCOM is interested in this probelm and right now we're trying to work on a system that will allow one to search across files. We have a system which is called POI which is just in the concept stage. There was a study done by Auerbach that was just recently completed. They said that it was impossible to search across files as they are currently being generated by the various abstracting services. About the only thing you can expect is to have a center on a campus or in an organization which collects all of these files and then have people as an interface between the files and the user. A user comes in and asks questions, and the person who is the interface determines which files have to be searched and which strategies have to be applied. He searches these files, gets the answer back, does pretty much what a librarian does when he gets a reference question. The basic intellectual process is still one that has to be allocated to the librarian or the information analyst.

Mr. Smith: I tried to convince Steve Furth that he ought to say something about this but apparently he is not going to; so I am. I don't think cross-search capability of these files is really something we should strive for because, in the first place, I don't think we can ever achieve it. You can't pull all of these things together and so therefore, you have to concern yourself with the intellectual effort that is required to structure these files so we can have efficient searching. For example, in the **Chemical Abstracts** files now, they have over 3 million compounds. To do a search of 3 million compounds in linear fashion is going to cost you $3,000 or $4,000. That is the present state of affairs. But this file can be structured. For example, all the sulfur chemistry could be put in one place and I don't know how many compounds there are but I don't think there are over 100,000 compounds. Even in the future when there are 200,000 compounds in the sulfur file, I don't think we will really have to be concerned about this. We can search the file of 100,000 compounds in the linear system now for about $10.00 using a program based on information grouping logic. This is with 1600 BPI tape. When it is 3200 BPI tape, it is going to be a lot cheaper because we are actually tape-bound with this system at the present time. The central processing unit of the computer can do the job a lot faster than we can read the information in. When we go to 3200 BPI tapes, we are going to be able to get a search of 100,000 compounds done for $5.00. If we structure our files right, if we do this intellectual effort, we can get the price of a search of a large file down to where anybody can afford it and people will pay $5.00 for a search for a compound file and records of all the sulfur chemistry that has ever been created. I feel the job can be done. I am not nearly as pessimistic as Harold. Maybe I am too sanguine, but I don't think we should be afraid of the future. We can do this job if we will do our homework.

Dr. Greer: Mr. King, do you want to make a response or shall we go on?

Mr. King: I didn't mean to be that pessimistic. I think I agree pretty much with Mr. Smith on this, and I think the files will continue to be developed as they are now as specialty files rather than, as one of these girls suggested, by merging these files. I don't think it is necessary to merge them to do the kind of searching we are talking about. Our concept of something like a POI center would be allowing **Chemical Abstracts** and **Physical Abstracts** and the rest to still generate the files as they are now but perhaps to develop a software as an interface so that if you're a physicist, you can go in with terms you understand in physics which will allow the software recognizing the formats of files it has to deal with, to come up with a search strategy for each of the files. Rather than having a research strategy by a person, the machine would do it. That's the thing I am a little pessimistic about, whether we can do it or not.

Dr. Greer: Our last group leader is Basil Mitchell.

Mr. Mitchell: Well, I really don't represent a skeptical group I am sure, but I have a skeptical question for the hardware people here. What is the current experience with machine reliability? What are the problems of maintenance?

Mr. Furth: I am not an engineer. I don't think the hardware reliability is a problem. There are programs being run on machines on which the lives of astronauts and of people who use cars and bridges depend. I don't think that the reliability of the hardware itself is a problem. What frequently appears to the layman to be a hardware problem is a software problem. You may have the program that has been running for years and all of a sudden, the program bombs out, because conditions have arisen which were predictable. Now if you have a good systems designer, these errors will become apparent. There are two types of errors. There is the intermittent type of error which is bad because it is harder to stop, and then there is the consistent type of error which can be highlighted so that it becomes obvious that there is a malfunction

and you can take corrective action. Everybody in the computer field is working on improving the reliability of components, and they have made tremendous strides but computers are machines and machines do break down. The problem from the user's point of view, of breakdowns, o unreliability is not a serious one nor has it been so for several years.

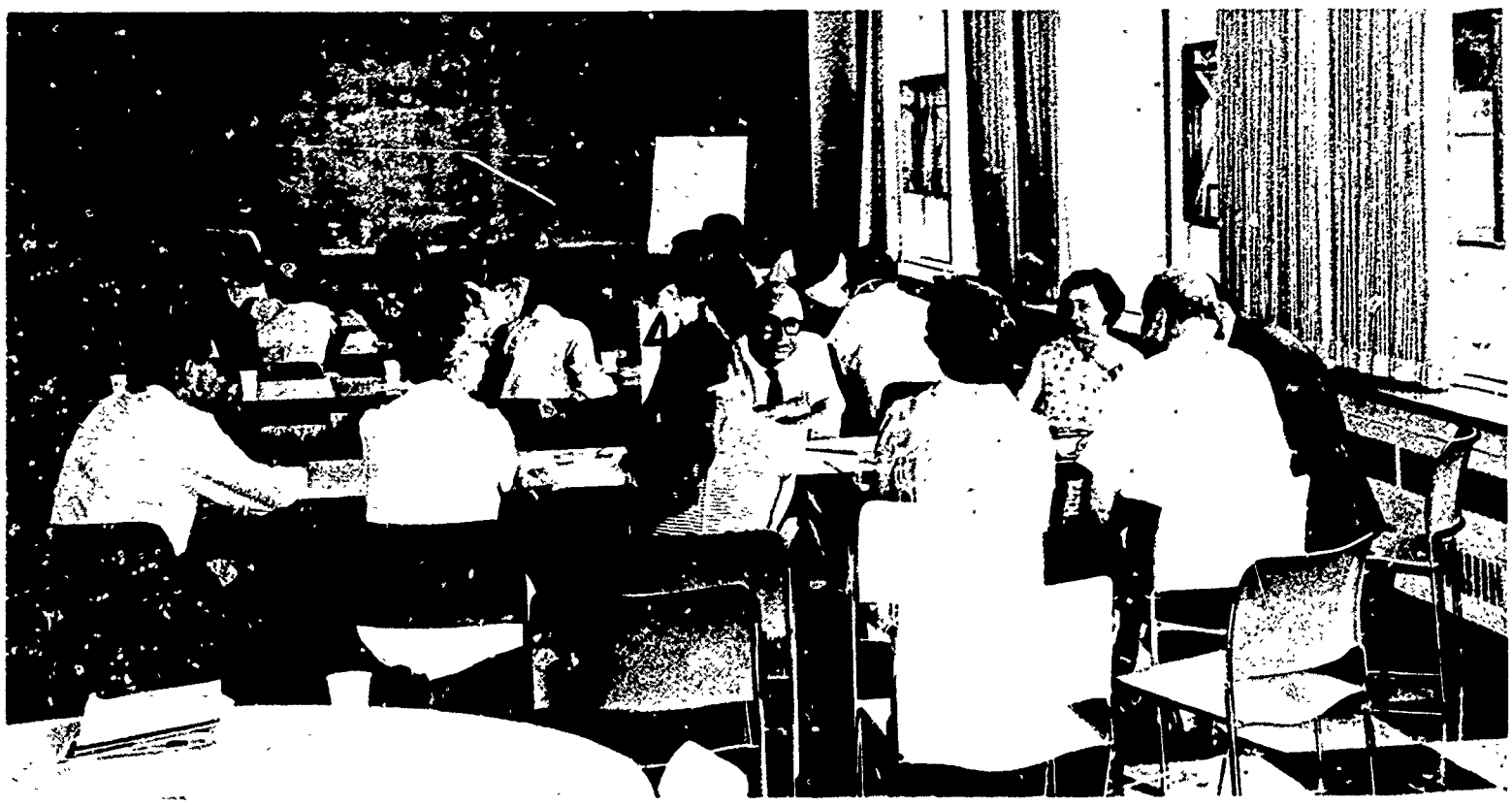
Dr. Greer: I have two more people who want to respond to this. Xerox, first.

Mr. Samoiloff: Copying devices are machines; so I took the opportunity to respond to this question. I think copying machines are remarkably reliable and if your's isn't, it probably is not one of ours. Well, since representatives of two of the corporations have very good quality control talk, I should probably take care of the rest of them. It turns out that the reliability in a system like that depends on how close you are to the machine. I think back to the early days of computer sciences when the programmer worked very closely with the machine. In many cases, he operated his own machinery. Reliability was relatively high. Although the machinery itself was not of as high reliability as at the present, the user being the programmer understood enough about the machinery so he could get the reliable operation he wanted out of it. We went to what we called program-oriented languages. We became a little more displaced from machinery. We are now writing languages which have to be converted into a machine language, and the programmer today doesn't understand the machine as much as he did before. Now we have to get into the third area which is probably more responsive to your needs and that is remote teleprocessing. Once you remove yourself physically from the installation, then you start to run into problems. The telephone company turns out to be not as reliable as needed with respect to data processing, the reason for this being that when you transmit voice over a line, the person at the other end can fill in gaps if you miss a word, so there is no problem. With a machine, if a "bit" is dropped someplace, the machine interprets that as meaning something other than you wanted it to. You have to talk about things like conditioning lines which cost a lot of money to guarantee that the transmission across that line is good. This is the same problem that they have in telefacsimile. Those of you who were involved in the telefacsimile transmission research program know that if you got a bad telephone line, you couldn't determine whether or not the copying coming out was chemical formulas or a picture or what it represented. When you start talking about quality, you have to determine what the environment is in which that equipment is going to operate to determine what quality you need.

Mr. Smith: I think it is much too early in the game for you people to be concerned with the problem of reliability. I think machines are reliable enough to handle any of the problems that you are going to have. It is quite true that there are problems of reliability and when we get into very large files, manipulating millions of bits of information, sometimes the machines are not reliable enough. I think that is someone else's problem and lots of people are working on it. The main reason I got up this time is that I realize that we have overlooked something here which is very important and I want to say just a word about this. We have been talking about one use of machines -- to help us in interrogating a file, and give us answers, but there is another very important use of machines and that is as a device to assist in the publication of specialized readable indexes. In fact, I think this is the most important use of a machine. There isn't any reason we can't program a machine to identify a piece of the total in which you are interested -- a subset -- and to take all that and manipulate it and print it out in some order that you have specified which makes it simple for you to use. As an example, we can identify from **Chemical Abstracts** all the cellulose chemistry or all of the technology that is related to fibers and print this all out in some organized fashion so that you have a readable index in front of you. This is the index you distribute to the people. Don't worry about terminals and getting on line tomorrow. There are tremendously efficient ways to publish indexes. There are cathode ray tube devices. For example, we happen to manufacture one of these that displays characters at the rate of 90,000 characters, not bits, **characters** per second and this is a very cheap way to publish. You can display these characters and record them on microfilm and copy that microfilm to make an index that is available to hundreds of people for very little money. This is a use of a machine that shouldn't be overlooked. I think this is one that should be considered very carefully by people in a regional network such as this.

Dr. Greer: And now to summarize all of this. Fortunately I don't have to. Miss Connor has been taking notes all morning and in her usual fashion will summarize superbly at lunch. I want to thank you for adjusting to this group session that was not planned in this way. I'd like to thank Mr. King and and Dr. Strauss for their presentations this morning, and I especially want to thank all these gentlemen for respond-

ing to this session in this way. They were not warned ahead of time that this is the way it would work out. I think it was quite successful. Thank you very much.



Miss Jean Connor

Mrs. Ottilie Rollins

Dr. Frances Breen

FRIDAY, JUNE 13, 1969 LUNCHEON

Presiding: Dr. M. Frances Breen, Librarian,
State University College at Plattsburgh

Dr. Breen: I would like to introduce the people at the head table today. On my far right is Mrs. Horton and then Mr. Van Judd who is with library development, Mary Parker, and you all met Hal King this morning. On my far left is E.J. Josey and then Ottilie Rollins, Basil Mitchell and of course last but not least, Jean Connor. I tried to think how to introduce Jean. We've introduced her every day so I decided there was really no need. We're delighted that she is willing to give us a summary of the conference, and we would like now to call on Miss Connor.

Miss Connor: It's an honor to be asked to summarize this conference and I'm going to do it very briefly and informally. As we drove through the North Country it seemed to me that any number of times, maybe ten, we crossed the Raquette River and in between was beautiful scenery and smaller streams and then we'd come over the Raquette River again. All I'm going to do in the summary is give you the main crossings of the Raquette River and not the little tributaries – the things that I noticed which were recurrent in the conference, five recurrent themes. I will follow that with a few points directed to the 3R's Councils. There are my personal reflections; you will have your own I'm sure.

The first theme and impression is that there is a growing information flow around us traditional librarians and traditional libraries and that the traditional library and even the traditionally structured inter-library loan network is not doing the information job; and hence, other types of information systems have come into being. My reaction to this is a sort of sense of being sobered by what I've heard and I have become, I think, a serious listener. The second theme is that information is being packaged in many formats and while tribute was paid to the book, there was more emphasis upon the computer as being integral to the

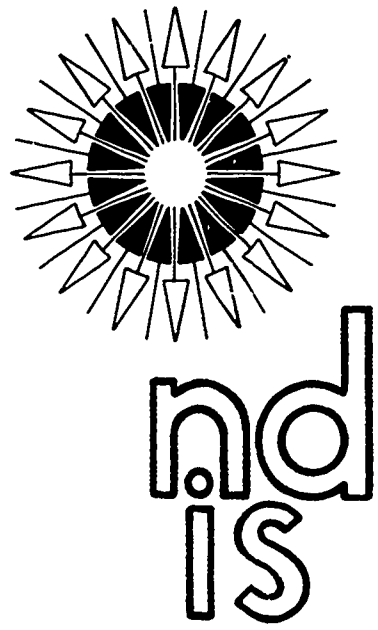
new information system. My reaction to this was that I think we have recognized here our own need to know more about EDP, more about the other world of the computer. The third recurrent theme has to do with the size and complexity of information systems and services and the fact that this complexity is growing. The resources and services on a local campus or in local industry have to be tied to regional, state and national services. Again my reaction is one of the need for continuing education, for conferences like this, that make us increasingly aware of the other developing systems. The fourth recurrent theme is that the cost of full information services are such that there must be increased joint planning and cooperation between the private and the public sector. More public funds are and will be needed at both State and Federal levels. My personal reaction here is of the implications that this has for planning. Planning is more important than ever in the midst of such a need for cooperation. We must broaden the base of planning and continue it. The fifth theme is the user. The user is frequently unable to recognize or articulate his needs. He is often unaware of what is now or could be potentially available to him. My reaction here is yours, I'm sure, the need to go out and be good salesmen.

And then I thought what does this mean for our 3R's Councils, for you and for the others, and for us at the State level who work with you? First, 3R's Councils should encourage the participation of non-librarians, professionals in the broad field of information science and the research workers and users themselves to participate in program planning of the work of the 3R's Councils. Put simply, we've got to enlarge our circle. Second, 3R's Councils should identify some specific goals of service to distinct users groups. For example, the talk this morning put vividly before us the needs of the non-attached physician and the need to experiment in active outreach to these non-academic groups. As a supplement to our broad-brush-stroke objective which we say again and again is aiming to help research in general, I think we need to be more specific. An example was given us by Bob Smith of ways in which we might tie into nationally developed selective dissemination information type services. Third point for the Councils: for a long time to come, cost effectiveness must be a prime consideration in the initiation of new 3R's services and therefore, the needs of the region must be focused upon, and we must couple the initiation of new services with cost analysis. Fourth, political activity and public relations activity are needed if the full potential of the libraries' role and that of the 3R's Councils and information services is to be understood and supported. Last, I came away with the positive point of view that we have here in our 3R's Councils a flexible structure, flexible enough, I think, to adapt to and utilize a variety of information systems and to draw upon the strengths of a variety of professions in the field of information and that this 3R Council structure which we have created actually can and will assist your regions to exploit fully the potential of all the variety of new information systems.

This Council is using a symbol on your program, on your name tags and now on me of the sun, which is energy, and let that be your symbol. Let it be an energetic Council and continue the fine work it has begun. It's been nice to be with you.

Dr. Breen: Thank you, Jean. I think you've added much to our conference. Now Mrs. Ottilie Rollins has a few words.

Mrs. Rollins: We have thanked our speakers, our panelists, our moderators, everybody who contributed to the conference publicly; but I would very much like to thank all the people who came and those who have worked on the committees. Frank Culver who has been our publicity man is now meeting a deadline and that's why he couldn't be here. Peggy Overfield, on our committee, handled registration and has very skillfully steered us in and out with name tags and numbers and arrangements at the head tables. Jason Carnright was in charge of transportation which we thought was going to be a problem with people coming in from Michigan, from Washington, D.C. and all over the place, but it turned out that everybody got here by themselves. I want to thank Lois McAllister, who has agreed to see that our conference proceedings will be published. She has a big job ahead of her so I'm congratulating her for the energy that will be going into this project. I also want to thank Mary Lou Mallam. She is actually responsible for the creation of this conference. She had one two years ago that she ran so successfully that everybody said we must have another conference. I don't need to say anything about Elena Horton. She has been a very charming and energetic leader of the North Country 3R's Council and has been pushing us to where we are and has been pushing us with the conference and you have seen the results. The same for Mary Parker who is always willing to help and whc was co-chairman of this conference. Thank you very much for coming and I hope you have a pleasant trip home.



BIOGRAPHICAL DATA OF SPEAKERS

NEAL L. MOYLAN

Commissioner of Commerce
New York State Department of Commerce

Neal L. Moylan was appointed Commissioner of Commerce by Governor Nelson A. Rockefeller on November 6, 1968.

A career employee with more than 20 years of service in State government, he had served as First Deputy Commissioner of the Department since April 1966.

Mr. Moylan joined the State Department of Commerce in 1947. From 1949 to 1951, he was Chief of Production and Distribution of the State Health Department's Office of Health Education.

He was appointed Director of the Radio Bureau of the State Commerce Department in 1951, serving in this position until 1960. Under his direction, the Bureau's scope of activity was greatly expanded, and it was renamed the Radio-TV-Motion Picture Bureau.

In 1960, Mr. Moylan was named Assistant Deputy Commissioner for the Division of Public Information, and he was named Deputy Commissioner on June 3, 1963.

Mr. Moylan brings a wide range of business and administrative experience to his post as Commissioner. He has broad acquaintance and close contact with the business and industrial community of the State and had held executive positions in numerous State and national business and fraternal organizations. He has wide experience in the fields of public relations and communications, including employment, previous to joining State service, in radio broadcasting at major stations in the Northeast.

He is a member of the board of the Albany Chapter of the American Red Cross; Fort Orange-Uncle Sam Council, Boys Scouts of America, and a former director of the Albany Workshop, Albany YMCA and the Senior Citizens Center. He is a member of the Public Relations Society of America and the American Society for Public Administration.

He is a former member of the board of directors of the New York State Broadcasters Association and past president of the Albany Junior Chamber of Commerce and the Albany Kiwanis Club.

Mr. Moylan resides with his wife, Regina, at 12 Kensington Court, Delmar.

ROBERT B. SMITH

Robert B. Smith was born in Winnipeg, Manitoba, Canada. He was educated in the Manitoba public schools. the University of Manitoba, and McGill University in Montreal. He flew with the Royal Canadian Air Force for 5 years during World War II, and, in addition to operational flying, had broad experience in flight testing of aircraft and development of techniques and equipment for aerial reconnaisance.

He joined the Eastman Kodak Company as a chemist in 1946 and worked for several years in the development of color photographic materials for professional motion pictures and television. As a staff assistant to the Director of Research, he participated in the military photography program, development of materials for Dacom, Minicard, etc. and side-looking radar and other military systems.

In 1958 he organized the Department of Information Serives for the Research Laboratories of the Eastman Kodak Company. He served on the Governor's Committee on Reference and Research Library Resources. He is a member of the Board of Engineering Index, Inc. and active in the development of local library systems and national systems for the fields of engineering and chemistry.

HAROLD B. KING

Research Associate, Interuniversity Communications Council (EDUCOM) and Project Director, National Agricultural Information Network Project.

For the last three years, Mr. King has been involved in the design and development of national information systems. He worked on the design for a National Chemical Information System under contract to the National Science Foundation and is currently developing a plan for a National Agricultural Information Network for the National Agricultural Library and the Land-Grant Universities.

Prior to this activity Mr. King was involved in the design and development of a number of automated command and control systems for the Strategic Air Command and the United State Navy. He is a member of the Association for Computing Machinery and the American Society for Information Science. He holds a B.A. degree in mathematics from San Jose State College in California.

He co-authored "A Proposed National Chemical Information System" which was published in the 1967 proceedings of the American Documentation Institute.

WILLIAM T. STRAUSS, M.D.

Associate Professor of Postgraduate Medicine

1. Columbia College, A.B., 1934
2. Columbia University College of Physicians and Surgeons, M.D., 1937
3. Practice of internal medicine, Long Island, 1940-1942.
4. Held position of medical director with several pharmaceutical companies for 24 years. Responsibilities included direction of clinical investigation of new drugs and development of programs of continuing education for physicians and other health personnel.
5. Associated with Department of Postgraduate Medicine at Albany Medical College since 1964 – presently Associate Professor of Postgraduate Medicine.

RONALD B. STAFFORD

Ronald B. Stafford, Republican, was born on June 29, 1935 at Plattsburgh, New York. He was graduated from Plattsburgh High School in June of 1953. He then attended St. Lawrence University and was graduated in June of 1957 with a B.A. Degree.

Upon graduation from St. Lawrence, Senator Stafford entered the Military Intelligence Corps. He remained in the service for the regular two-year tour and was stationed in Washington, D.C. as an Operations Officer. He had various tours abroad and is presently a Reserve Officer in the Army Intelligence.

After his release from active duty, Senator Stafford entered the Columbia University School of Law. He attended law school through a grant from the Edward John Noble Foundation and was graduated with an LLB Degree in June of 1962. He was admitted to the Bar the following spring.

In the fall of 1965, Stafford was elected to the New York State Senate, representing the 48th Senatorial District which included the counties of Clinton, Essex, Franklin, Hamilton and St. Lawrence. In November of 1966, Stafford was re-elected to the Senate, representing the newly created 42nd Senatorial District consisting of the counties of Clinton, Essex, Franklin, Hamilton, Herkimer, Warren and Washington.

The Senator is a member of the following Joint Legislative Committees: Education Reapportionment and Town Law. He is presently Chairman of the Senate Standing Committee on Higher Education and is also a member of the following other Committees: Agriculture and Markets, Codes, Conservation and Recreation, General Laws, National Defense and Military Affairs, Villages, Health, Corporations and Excise.

Senator Stafford is a member of a number of civic and service organizations, the Alumni Council of St. Lawrence University, Board of Trustees of Champlain Valley School of Nursing, Board of Governors of Medical Center Hospital of Vermont, Board of Directors of Crown Point Foundation, member of the Clinton County Bar Association, New York State Bar Association, and the American Bar Association.

Senator Stafford maintains a law office at 11 Clinton Street, Plattsburgh, New York, and resides at 14 Pleasant Street, Peru, New York.

ROGER C. GREER

Roger C. Greer was born in Chatfield, Minnesota, April 29, 1928. He currently resides at 5011 Skyline Terrace, Syracuse, with his wife the former Natalia Markulis.

Mr. Greer received his BA in History from Columbia University, and his LS, MLS, and PhD from Rutgers University. He is able to read and/or speak both French and German.

During the war Mr. Greer was with the US Navy Amphibians and then with the US Army Intelligence. He was a pre-professional trainee with the Brooklyn Public Library and then went on to positions with the Linden Public Library, Purdue University, and Rutgers University. From 1964-1967 he was the Director of the Library at the State University College in Potsdam. He held the positions of Assistant Dean and Associate Professor in the School of Library Science at Syracuse University from 1967 to July of 1968 when he was named Dean of the Library School.

Mr. Greer is very active in all the professional organizations such as the ALA, NYLA, SLA. From 1964 to 1967 he was a member of the Board of Trustees of the North Country Reference and Research Resources Council. He became President of the Board in 1967.

In addition he acts as a consultant for Gaylord Supplies, Inc., Syracuse, for System Development Corp., Santa Monica, California, for the U.S. Office of Education and for the N.Y. State Department of Education, Registration Division. In 1966 he became a member of the Advisory Board of Mater Dei College, Ogdensburg, New York.

Mr. Greer's professional interests lie mainly in college and university library Administration, Reference, Library Education, Documentation, Bibliography and academic Librarianship.

JEAN L. CONNOR

64½ Willett Street
Albany, New York 12210

BORN: Newton, Iowa – July 21, 1919

EDUCATION:
Middlebury College 1937-41
(English Literature – Bachelor of Arts)
Columbia University 1941-42
(Bachelor of Library Science)
SUNY
(Public Administration)

POSITIONS:
Rochester Public Library, Rochester, New York
Reference Assistant Junior Librarian – 1942-44
Young Adult Librarian, Senior Librarian – 1944-46
Branch Librarian, Senior Librarian – 1946-48
White Plains Public Library, White Plains, New York
Readers Advisor – 1948-54
Library Development Division, New York State Library
Senior Library Supervisor – 1954-57

Associate Library Supervisor – 1958-63
Director – 1963-

OTHER: Phi Beta Kappa
1968 – Charles Evans Hughes Award, Capital District Chapter, American Society for Public Administration
Contributes articles to professional books and/or journals.

PRINCIPAL AREAS OF PROFESSIONAL INTEREST:
State Library Extension Work
Administration

MICHAEL KERWAN
Programmer Analyst
Biomedical Communication Network
766 Irving Avenue
Syracuse, New York 13210

Mr. Kerwan is a native of Horseheads, New York and a graduate of Corning Community College and the University of Buffalo. While attending the graduate school of the University of Nebraska (studying mathematics), he worked on the College of Law's project in computer retrieval of legal information.

Before coming to the Biomedical Communication Network in December of 1967, he taught mathematics at Brescia College in Owensboro, Kentucky.

Mr. Kerwan is married and the father of a ten-month old son.

STEPHEN E. FURTH
IBM Corporation
112 East Post Road
White Plains, New York 10601

Mr. Furth joined the IBM Corporation in November, 1929 and has served as Branch Manager, Special Representative, and Industry Marketing Manager in Europe and the United States. His present title is Manager, Information Systems Marketing.

His forty years with the company include three and one-half years' military service in the United States Army.

He was graduated from the Academy of World Trade, Vienna, Austria with a master's degree in Economics.

Memberships:
IEEE
ACM – since 1948
TIMS – since 1965
American Society of Information Science
American Library Association

Committees:
IEEE, Information Services Committee
ACM, Special Interest Group, Information Retrieval
American Bar Association, Standing Committee on Law and Technology
USA Standards Institute, Z-39 Committee
Information Retrieval Committee – Project Aristotle (DoD)

JOHN A. HUMPHRY

John A. Humphry was appointed Assistant Commissioner for Libraries on April 3, 1967. He was born in Springfield, Massachusetts and attended schools in Harrison, New York and in New York City before entering Harvard College from which he graduated in

1939. As a student he worked part time in the College Library, the beginning of his library career. Upon graduation he worked there full time before entering Columbia University's School of Library Service. Having secured his library degree in 1941, he returned to the Harvard University Library, serving at various times in the catalog, book order, and reference departments, and the reading rooms.

During World War II, Mr. Humphry served as consultant, first for the Office of Scientific Research and Development, and later for the Massachusetts Institute of Technology, when he was assigned intelligence work in the Office of the Chief of Naval Operations in Washington. He retained this position until going to Baltimore in 1946 to serve as Director of Book Processing at the Enoch Pratt Free Library. Late in 1948 Mr. Humphry was appointed Director of the Springfield, Massachusetts City Library. In May of 1960, he was named by the Board of Trustees to the position of Executive Director of the Springfield Library and Museums Association, in addition to his responsibilities as Director of the Library. In July, 1964, he was appointed Director of the Brooklyn Public Library from which position he resigned on March 31 to come to Albany.

Mr. Humphry is active in the library profession, having served as President of the Massachusetts Library Association, member of the Executive Board of the New England Library Association, a member of the Board of Directors of the Resources and Technical Services Division of the American Library Association, Chairman of the Massachusetts Library Development Committee and Chairman of the Committee on State Aid to Libraries. During his service in Massachusetts, he was appointed to the State Board of Library Commissioners on which he served for seven years. He helped plan the program of regional library service in Massachusetts. He has served as an associate in public library administration for the Simmons College School of Library Science and as a visiting lecturer in library science at American International College in Springfield. Mr. Humphry served as a member of the Board of Trustees of the New York Metropolitan Reference and Research Library Agency from 1964 to 1967.

Since 1954, Mr. Humphry has served as advisor and consultant to many school, college and public libraries in the East. He has also conducted state-wide comprehensive library studies in Delaware and Rhode Island, the latter study resulting in a book entitled "Library Cooperation" published by Brown University Press in 1963. He has recently completed a study of library service and library education in Louisiana.

His wife is the former Elizabeth Louise Daniell of Newton, Massachusetts. They have two sons, Jonathan who is a student at Cornell, and Keith at the College of Wooster in Ohio.

At the 1968 meeting of the American Library Association, Mr. Humphry was elected President of the American Association of State Libraries, a Division of the American Library Association. He was elected, also in 1968, to membership and directorship of the Council on Library Resources.

DUDLEY D.B. SAMOILOFF

University Microfilms, A Xerox Company Ann Arbor, Michigan 48106

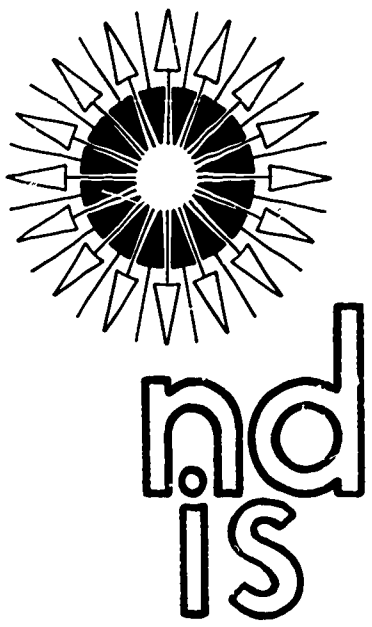
BORN:	August 14, 1934
EDUCATION:	A.B. Political Science and French Literature Tufts University, 1960
WORK EXPERIENCE:	Editor, Physics and Engineering, Textbooks, John Wiley & Sons, New York, New York, 1962-1966
	Projects Manager, University Microfilms, Ann Arbor, Michigan, 1966-1967
	Manager of Product Planning, University Microfilms, 1968 on

APPENDIX B

CONFERENCE PARTICIPANTS

Bachus, Edward, Clinton-Essex-Franklin System, Plattsburgh
Baxter, Mrs. Mary, Sr. Programmer Analyst, Biomedical Center, Syracuse University
Blum, Norbert, North Country Library System, Watertown
Breen, Dr. Frances, Librarian, State University College at Plattsburgh
Carnright, Jason, State University College at Plattsburgh
Colish, John, Clarkson College of Technology, Potsdam
Commerton, Anne, State University College at Oswego
Connor, Miss Jean, Director, Division of Library Development, NYS Library, Albany
Cotellessa, Violet, Clarkson College of Technology, Potsdam
Culver, Frank, State University College at Potsdam
Cummins, Mrs. Wilma, State University College of Agriculture & Technology at Canton
Donovan, Clare, Potsdam Public Library, Potsdam
Dowling, Richard, ed. Courier-Freeman, Potsdam
Dumont, Norman, Clinton-Essex-Franklin System, Plattsburgh
Durant, Mrs. Cheryl, North Country Reference & Research Resources Council, Canton
Faucher, Rene, State University College of Agriculture & Technology at Canton
Fraser, Mrs. Doris, Clarkson Technical Information Center, Potsdam
Furth, Stephen E., Manager, Information Systems Marketing, IBM Corporation, White Plains
Garner, Mrs. Margaret, State University College at Potsdam
Garretson, Mr. & Mrs. Henry C., Jefferson Community College, Watertown
Graham, Dr. John W., Jr., President, Clarkson College of Technology, Potsdam
Greer, Dr. Roger C., Dean, School of Library Science, Syracuse University
Gulick, Mrs. Melba, State University College at Potsdam
Harvey, Roger, Fiber Products Research Center, Beaver Falls
Horton, Mrs. Elena, Executive Director, North Country Reference & Rescarch Resources Council, Canton
Humphry, John A., Assistant Commissioner for Libraries, NYS Education Department, Albany
Jones, Ersel, Clarkson College of Technology, Potsdam
Josey, E.J., Chief, Bureau of Academic and Research Libraries, NYS Education Department, Albany
Jtineant, Mr. & Mrs. Paul, State University College at Potsdam
Judd, J. Van der Veer, Assistant, Bureau of Academic and Research Libraries, NYS Education Department, Albany
Kerwan, Michael, Programmer Analyst, Biomedical Center, Syracuse University
King, Harold, EDUCOM, Bethesda, Maryland
King, Phillip, Clarkson College of Technology, Potsdam
Lantry, Donald J., St. Regis Lacrosse Company, Inc., Cornwall Island
Lawrence, Richard, Jr., Lawyer, Elizabethtown
Little, Mrs. Dee, Potsdam Museum, Potsdam
Little, George, General Mgr., Courier-Freeman, Potsdam
Lowe, Harold T., Urban Renewal Agency, Potsdam
MacLean, Mrs. Marlene, Clarkson College of Technology, Potsdam
McAllister, Mrs. Lois, Librarian, Jefferson Community College, Watertown
Mallam, Mrs. Mary Lou, St. Lawrence University, Canton
Mentley, Mrs. Josephine, St. Lawrence University, Canton
Miller, Mrs. Judith, North Country Reference and Research Resources Council, Canton
Mitchell, Mrs. Anne, State University College at Plattsburgh
Mitchell, Basil, Executive Director, Southeastern New York Library Resources Council, Poughkeepsie
Moylan, Neal L., Commissioner of NYS Department of Commerce, Albany
Misiaszek, Mr. & Mrs. E.T., Clarkson College of Technology, Potsdam
Overfield, Mrs. Margaret, State University College at Potsdam

Parker, Mrs. Mary G., Librarian, State University College of Agriculture & Technology at Canton
Penrose, Charles, Clarkson College of Technology, Potsdam
Piel, Walter, Ontario East Regional Center, Potsdam
Roberts, Ronald L., Director, North Country Library System, Watertown
Rollins, Jane, Division of Library Department, NYS Library, Albany
Rollins, Mrs. Ottilie, Librarian, Clarkson College of Technology, Potsdam
Romoda, Mrs. Ruth, State University College of Agriculture & Technology at Canton
Ross, Kenneth, ALCOA, Massena
Rosse, Rosanna, Clarkson College of Technology, Potsdam
Russell, William, State University College of Agriculture & Technology at Canton
Salverson, Carol, Jefferson Community College, Watertown
Samoiloff, Dudley D.B., Manager of Product Planning, Xerox Corp., Ann Arbor, Michigan
Shulman, Dr. & Mrs. Herman L., Clarkson College of Technology, Potsdam
Sister Mary Joseph, Mater Dei College, Ogdensburg
Sister Rosalia, Mater Dei College, Ogdensburg
Smith, Nicholas, Ogdensburg Public Library, Ogdensburg
Smith, Mrs. Patricia, North Country Reference and Research Resources Council, Canton
Smith, Mr. & Mrs. Robert, Head of the Department of Information Services, Eastman Kodak Research Laboratories
Sostheim, Dr. Helen T., St. Lawrence State Hospital, Ogdensburg
Stafford, Ronald B., New York State Senator, Albany
Strauss, William T., M.D., Director, Albany Regional Medical Program, Albany
Vecchio, Anthony, Director, Clinton-Essex-Franklin System, Plattsburgh
Vorse, Mrs. Elinore, State University College at Potsdam
Waddell, Mrs. Rose, Clinton-Essex-Franklin System, Plattsburgh
Ward, Richard, Clinton-Essex-Franklin System, Plattsburgh
Wells, Phyllis, State University College at Plattsburgh
Whitten, Dr. Joseph N., State University College at Maritime
Yelton, Dr. Donald C., Director of Libraries, State University College at Potsdam



NORTH COUNTRY REFERENCE AND RESEARCH RESOURCES COUNCIL

Questionnaire for Group Discussion Purposes

In order to ascertain the research needs of conference participants the committee has prepared a list of potential as well as of presently available services. Will you check items which would be useful in meeting your needs.

1. Loan SERVICE

Books, journals, government documents and maps are presently available through the college libraries of the Council. At present these would be mailed upon request. Can you use this service? YES ____ NO ____

2. Photocopy SERVICE

Photocopy of materials is presently available from the Council. Can you use this service? YES ____ NO ____

3. Teletype SERVICE

Offers direct teletype access to other libraries both within and outside of New York State. Can you use this service? YES ____ NO ____

4. Referral SERVICE

Identifies, and if desired, makes contact with national information centers or technical libraries. Can you use this service? YES ____ NO ____

5. Location SERVICE

Functions to locate publications not available in the North Country. Can you use this service? YES NO

6. Bibliographic verification SERVICE

Provides accurate identification of incomplete references. Can you use this service? YES NO

7. Delivery SERVICE

Provides prompt motor delivery service of loans. Can you use this service? YES NO

8. Use of NCRRRC libraries

Council members, research workers, professional people may, upon identification, use libraries belonging to the Council. Do you use this service? YES NO

9. Reference SERVICE

A reference librarian is available at the Council offices to respond to information requests. Do you use this service? YES NO

10. Translation SERVICE

Articles from foreign professional journals could be translated if the service was needed. Could you use this service? YES NO

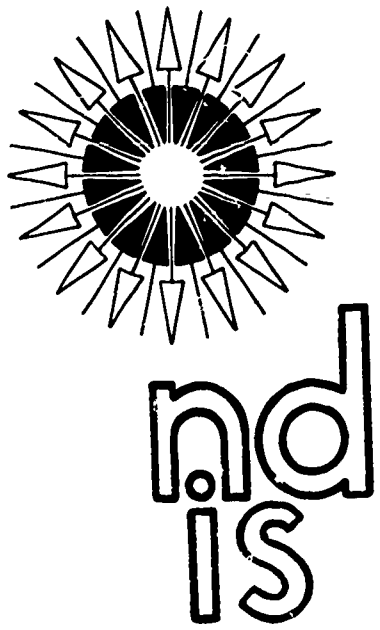
11. Other Suggestions:

Would you like to become a council member?

Types of Membership	*Price*	
Voting Membership	**$25.00**	[ ]
Affiliate	**$10.00**	[ ]
Associate Institution	**$10.00**	[ ]
Associate Individual	**$ 1.00**	[ ]

*NAME*_____

*ADDRESS*_____



CONCLUSIONS

It is apparent that a conference of this type can only skim the surface. Very early during the conference it became clear that a lot of information was already known to some people but was not easily available to others. A conference of this type can only work as a catalyst to speed the development of information facilities and at the same time make people aware of the breaks that still exist in the information chain. The manufacturer and the systems analyst learn what is needed by the user and the user becomes more aware of how much has already been done to make the tremendous reservoir of existing knowledge accessible to him for his particular needs. It will now take effort and cooperation on both sides to follow the suggestions of the speakers and to bridge the many remaining gaps. It will be necessary to bridge the natural dividing lines between the suppliers and the users, between those who have the information and those who can distribute it to the ones who need it.

It is hoped that more conferences of this type will be held, sponsored by other 3R's councils, technical information centers, libraries, etc. Greater cooperation is the key for the future.

As more and more networks are interconnected, computer capacity is enlarged to store greater data banks, and more computers become easily accessible to individuals, more private individuals will be able to take advantage of one or the other of the information networks and services. Not until this is achieved on a broad scale will the greatest efficiency be reached. Right now the number of people who are aware of all the opportunities that exist for them to obtain information they need and want is quite small. Most of the existing information services are expensive. In the future one of the most important jobs for librarians will be to keep up with latest developments in the information science field. This knowledge must then be passed on to their patrons, each of whom will have to decide whether a given piece of information is worth the price and effort to him or her in his work as a researcher, teacher, graduate student, businessman, or professional person. Librarians will have to work closely with the information scientist; and they will have to become as familiar with computerized systems and other media as they are with books and journals.

Ottilie H. Rollins

MEMBER INSTITUTIONS OF NORTH COUNTRY REFERENCE AND RESEARCH RESOURCES COUNCIL

1. Adirondack Museum
2. American Management Association
3. Ayerst Laboratories, Inc. Science Library
4. Champlain Valley School of Nursing
5. Clarkson College of Technology
6. Clinton County Community College
7. Clinton-Essex-Franklin Library System
8. Fort Ticonderoga Museum
9. A. Barton Hepburn Hospital Medical Library
10. Jefferson County Community College
11. Jefferson County Historical Association
12. Mater Dei College
13. North Country Community College
14. North Country Library System
15. Paul Smith's College
16. Potsdam Museum
17. St. Lawrence County Historical Society
18. St. Lawrence State Hospital
19. St. Lawrence University
20. State University of New York Agricultural & Technical College at Canton
21. State University of New York at Oswego
22. State University of New York at Plattsburgh
23. State University of New York at Potsdam
24. Trudeau Institute
25. Wadhams Hall
26. Will Rogers Hospital
27. Clinton-Essex-Franklin System Libraries
28. North Country Library System Libraries